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AFRICAN REPTILES AND AMPHIBIANS
IN
FIELD MUSEUM OF NATURAL HISTORY

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AFRICAN REPTILES AND AMPHIBIANS

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INTRODUCTION

The African herpetological collections of Field Museum may be said to have started with twenty-two specimens brought back by D. G. Elliot and Carl E. Akeley from British Somaliland in 1896. Although most of these were referable to common and widespread species, *Coluber rhodorachis* and *Philochortus hardeggeri* were taken. Neither of these can be considered anything but rare in museums.

During the years 1905-07, Akeley again visited Africa. He was accompanied by Edmund Heller and together they collected in the region now known as Kenya Colony. Two hundred and nineteen reptiles and thirty-eight amphibians were secured, among them the type series of *Agama agama caudospinosa* and a pair of the diminutive snake *Vipera hindii*.

In 1925-26, Heller passed through Kenya to Uganda, where he collected in the zoologically little-known Kigezi District and across the border in Belgian Ruanda-Urundi and the Belgian Congo. On this trip he secured 209 reptiles and 972 amphibians, the richest herpetological results obtained by any of Field Museum's African expeditions. Apart from new races based on this material, the rarities obtained by Mr. Heller are too numerous to list here; of outstanding importance, however, are *Cnemaspis dickersoni*, *Hemidactylus ituriensis*, and *Algiroides boulengeri*.

About the same time, i.e. in 1926, J. T. Zimmer was engaged on an ornithological reconnaissance which took him through Tanganyika Territory, the eastern Belgian Congo and Uganda. Mr. Zimmer, in addition to his avian studies, found time to gather 279 reptiles and amphibians. Among these was an exceedingly rare file snake, *Mehelya chanleri*, and a choice arboreal lizard, *Holaspis guentheri*. The capture of the latter fills me with envy for it was obtained at Uleia, only two days' march south of Kilosa, where I spent two years without seeing one.

It was also in 1926 that W. H. Osgood, accompanied by A. M. Bailey and the late Louis A. Fuertes, visited Ethiopia. Prior to this expedition there were only six reptiles from Ethiopia in Field

Museum. As a result of this trip, fifty-three specimens were added, including the holotype of a very distinct toad, *Bufo osgoodi*, and examples of *Aeluroglena cucullata* and *Mocquardia obscura*, representing two genera of which I believe no other specimens exist in any American collection.¹ In 1929, C. J. Albrecht secured fourteen more reptiles and eight amphibians from Ethiopia, so the Field Museum collection is relatively rich in material from this neglected region. Mr. W. D. Hambly, while engaged in anthropological studies for Field Museum in Angola, collected seventy-six specimens of amphibians and reptiles.

The foregoing briefly summarizes the more important herpetological collections made by members of the museum staff in Africa. Were these all, the material would be preponderantly eastern and unrepresentative, but steps were taken by purchase and exchange to secure a well-balanced series. Thus Morocco is represented by ten specimens from the Riggenbach collections and Algeria by two from the British Museum. By exchange forty-five examples of Egyptian reptiles were obtained, as well as nine collected by the famous Ruwenzori Expedition to the Mountains of the Moon.

From Cape Colony there are eighty-one reptiles and amphibians, collected by A. S. Romer and F. C. Wecke; six specimens from the Southwest Protectorate include *Palmatogecko rangei* and *Aporosaura anchietae*, taken by J. Gaerdes. One of the most valuable collections consists of eighty-two reptiles and amphibians from Cameroon and Gaboon, representative of the West African fauna, which were purchased from W. F. H. Rosenberg in 1923. These are supplemented by eight amphibia collected by Mrs. Edwin Cozzens, including a series of *Rana goliath*, and *Astylosternus robustus*, the so-called "hairy frog" of Africa. From Nigeria there are three specimens, contributed by Miss E. A. Clark and Mr. William Heckman.

Only a few small and unimportant accessions are omitted from this summary, but enough has been said to show that the collection is reasonably representative. It is weakest in material from Africa west of the Cameroons and from the vast Sudan, and it would be desirable to augment the collection from these areas.

This report deals only with the African collections of Field Museum up to December 31, 1931, at which time there were 941 reptiles and 1,241 amphibians. Since then the Museum has been

¹Since this was written the Museum of Comparative Zoology has received five examples of *M. abyssinica* from Addis Ababa.

greatly enriched by the receipt of its share of the splendid material resulting from the Vernay-Lang Kalahari Expedition. The herpetological results of this expedition have been reported upon elsewhere by Mr. V. Fitzsimons of the Transvaal Museum (Ann. Transvaal Mus., 15, pp. 25-40 and pp. 519-550, 1932 and 1935). My thanks are due to Mr. Karl P. Schmidt, curator of the herpetological collections in Field Museum, for his unflinching kindness and helpfulness in answering questions, comparing material, and otherwise aiding the production and publication of the report.

SUMMARY OF TAXONOMIC CHANGES

Only two papers dealing with the African herpetological collections of Field Museum have appeared so far. Both were by the late S. E. Meek (Field Mus., Zool. Ser., 1, pp. 175-184, 1897; *ibid.*, 7, pp. 403-414, 1910), and it should be borne in mind that at the time they were written Dr. Meek was dependent on the literature, with no comparative material available. Even so, their appearance was unfortunate, more particularly the first, in which every lizard was misidentified and all the "new" forms were synonyms of well-known species. The most useful purpose this earlier publication can serve is as a warning to those contemplating publication with an inadequate knowledge of the literature or without comparative material.

It seems advisable to publish the identifications which I have made after a careful re-examination of Dr. Meek's material. In the paper dealing with Akeley's collection from British Somaliland, Meek lists seventeen species of which ten were incorrectly determined as follows:

- Psammophis sibilans*=*Psammophis biseriatus* Peters
Varanus albigularis=*Varanus ocellatus* Heyden
Latastia carinata=*Philochortus hardeggeri* (Steindachner)
Eremias brenneri=*Eremias mucronata* (Blanford)
Mabuia varia=*Mabuia striata* (Peters)
Lyogsoma (sic) *akeleyi*=*Chalcides o. ocellatus* (Forskål)
Rhampholeon mandera=*Rhampholeon k. robecchi* Boulenger
Bufo garmani=*Bufo r. regularis* Reuss
Bufo viridis somalacus=*Bufo blanfordii* Boulenger
Phrynobatrachus hailsiensis=*Rana oxyrhynchus* A. Smith

In the paper on Akeley's British East African material only eleven of the forty-four species listed are subject to correction. The first two should not be considered errors as the races were described subsequent to the appearance of the paper.

- Testudo pardalis*=*Testudo pardalis babcocki* Loveridge
Trimerorhinus trilaeniatus=*Trimerorhinus t. multisquamis* Loveridge
Rhamphiophis oxyrhynchus=*Rhamphiophis rostratus* Peters
Psammophis sibilans=*Psammophis sublaeniatus* Peters

- Causus resimus*=*Causus rhombeatus* (Lichtenstein)
Hemidactylus brookii=*Hemidactylus mabouia* (M. de Jonnès)
Agama colorum=*Agama a. lionotus* Boulenger
Chamaeleon elliotti=*Chamaeleon b. bitaeniatus* Fischer
Chamaeleon dilepis=*Chamaeleon d. roperi* Boulenger and
C. b. höhnelii Steindachner
Rana mascariensis Günther (sic)=*Rana m. mascareniensis* D. and B.
and *R. oxyrhynchus* A. Smith
Rappia marmorata (Rapp)=*Hyperolius striolatus* Peters
Rappia cinctiventris (Cope)=*Hyperolius striolatus* Peters

Further references to synonymy, which result from the study of the collection as a whole, are the following:

- Typhlops batesii* Boulenger=*Typhlops steinhausi* Werner
Mizodon variegatus Peters=*Natrix fuliginoides* (Günther)
Simocephalus butleri Boulenger=*Mehelya chanleri* (Stejneger)
Simocephalus unicolor Boulenger=*Mehelya chanleri* (Stejneger)
Mehelya somaliensis Lönnberg and Andersson=*Mehelya chanleri* (Stejneger)
Chlorophis schubotzi Sternfeld=*Chlorophis emini* (Günther)
Chlorophis heterodermus pobeguini Chabanaud=*Chlorophis heterodermus*
Hallowell
Chlorophis cyaneus Hecht=*Chlorophis heterodermus* Hallowell
Euprepes raddoni Gray=*Mabuya blandingii* (Hallowell)
Mabuya varia var. *longiloba* Methuen and Hewitt=*Mabuya varia damaranus*
(Peters)
Chalcides pulchellus Mocquard=*Chalcides b. bottegi* Boulenger
Chamaeleon jacksoni var. *vauerescecae* Tornier=*Chamaeleon jacksoni* Boulenger
Gampsosteonyx batesii Boulenger=*Astylosternus diadematus* Werner
Astylosternus oxyrhynchus Nieden=*Scotobleps gabonicus* Boulenger
Rana (Tomopterna) signata Ahl=*R. delalandii cryptotis* Boulenger
Rana (Tomopterna) cacondana Ahl=*R. delalandii cryptotis* Boulenger
Rana unagratti Scortecci=*R. galamensis bravana* (Peters)
Rana fiechleri Scortecci=*R. galamensis bravana* (Peters)
Rana somalica Scortecci=*R. galamensis bravana* (Peters)
Phrynobatrachus versicolor Ahl=*Phrynobatrachus dendrobates* (Boulenger)
Phrynobatrachus petropedetoides Ahl=*Phrynobatrachus dendrobates* (Boulenger)
Leptopelis rugegensis Ahl=*Leptopelis karissimbensis* Ahl
Rohschildia kounihensis Mocquard=*Mocquardia obscura* (Boulenger)
Phrynomantis nasuta Methuen & Hewitt=*Phrynomerus annectens* (Werner)
Hoplophryne marmorata Ahl=*Phrynomerus annectens* (Werner)

LOCALITIES FROM WHICH MATERIAL IS RECORDED

ALGERIA

Algiers. Capital and chief port of the country.

El Kantara. Southeast of Algiers 200 miles.

ANGOLA

Benguela (Benguella). The well-known port on the west coast,
12° 30' S., 13° 20' E.

Cabiri. A few miles west of St. Paul de Loanda.

Cuma. District of Huambo, Province of Benguela.

Dondo (Ndondo). On the Quanza River southeast of St. Paul
de Loanda.

BELGIAN CONGO

Bambuni. At the western base of the Ruwenzori Range.

Beni. This is old Beni, a well-known post in the Semliki Valley just north of Lake Edward.

Bugongo Ridge. On the western watershed of the Ruwenzori Range. Alt. 9,500 feet.

Bukama. Between, and a little to the east of Lakes Edward and Kivu; close to the former western corner of the boundary between Uganda and former German East Africa.

Bunia. Forty miles northeast of Irumu, which see.

Ibala. On Musongi Creek on the western watershed of the Ruwenzori Range. Alt. 7,000 feet.

Irumu. A little west of the south end of Lake Albert.

Kabengere. On the Luapula River, which flows from Lake Bangweulu to Lake Mweru.

Kalongi Village. On the western watershed of the Ruwenzori Range. Alt. 8,500 feet.

Katobwe. On the upper Lualaba River, about sixty miles north of Bukama.

Kivu, Lake. Due north of Lake Tanganyika. Its western half lies in the Congo but the eastern portion is in Belgian Ruanda-Urundi.

Mambawanga Hill. Forty miles west of Beni, which see.

Ruchuru (Rutschuru). An important government post midway between Lakes Edward and Kivu.

Walikale. A government post seventy-five miles due west of the extreme northwest corner of Lake Kivu.

BELGIAN RUANDA-URUNDI

Kisenji (Kissenji, and also Kissegnies in Wollaston, 1908, "From Ruwenzori to the Belgian Congo"). An important government post on the northeast shore of Lake Kivu.

Kivu, Lake. Due north of Lake Tanganyika. Heller collected both on the Congo and Ruanda shores of this beautiful lake.

BRITISH SOMALILAND. See SOMALILAND PROTECTORATE

CAMEROON

Akok. A coastal town near Kribi at the mouth of the Kribi River, southern Cameroon.

Batan. Possibly an abbreviation or error for Batanga, which see.

Batanga. Either Little or Great Batanga lying to the north and south of Kribi on the coast.

Bitye. On the Ja River.

Efulen. About seventy-five miles southeast of Lolodorf, 2° 40' N., 10° 45' E.

Ja River (Dscha River). About seventy-five miles east of Kribi.

Kribi River. Discharges into the Atlantic Ocean at Kribi, southeast of Fernando Po.

Lolodorf. On the Lokundu River, fifty miles inland from Little Batanga.

CAPE PROVINCE, UNION OF SOUTH AFRICA

Bechuanaland. An area of Cape Province lying to the north of Griqualand and the Orange River, south of the Bechuanaland Protectorate and west of the Transvaal.

Lady Frere. A few miles northeast of Queenstown and about a hundred miles northwest of East London.

Kleinsee. Near Port Nolloth, which see.

Port Elizabeth. In Algoa Bay midway between Cape Town and Durban.

Port Nolloth. Near the boundary of the Southwest African Protectorate and about 500 miles due northwest of Cape Town.

EGYPT

Alexandria. The large Egyptian port.

Cairo. Capital and chief city of Egypt; 30° 10' N., 31° 10' E.

Giza (Gizeh). A suburb of Cairo, which see.

Karnak. Near Luxor, lower Nile.

Suez and Ismailia. Ismailia lies halfway between Port Said and Suez on the Suez Canal. Suez is at the southeastern entrance of the Canal.

Tel el Amarna. On the Nile 175 miles south of Cairo.

ETHIOPIA (ABYSSINIA)

As these Ethiopian localities are on few maps, the latitude and longitude are given. The spelling adopted, except in the case of the Webi Shebeli, is that of the Times "Map of Abyssinia" revised in 1935. I am indebted to Dr. W. H. Osgood for defining or assisting in locating many of these places.

Addis Ababa. Capital and chief town of Ethiopia, also terminus of the railway from Jibuti, French Somaliland; $9^{\circ} 4' N.$, $38^{\circ} 50' E.$

Albasso Mountain. An elevated region at the northeastern end of the Chilalo Range, Arusi Province; $7^{\circ} 50' N.$, $39^{\circ} 30' E.$

Allata. Former capital of Sidamo Province, northeast of Lake Abaya; $6^{\circ} 33' N.$, $38^{\circ} 28' E.$

Awadi River. A small stream flowing into Lake Shala from the east. Arusi Province.

Bisan River. In Sidamo Province, near Boran country.

Chilalo Mountains. Arusi Province, southeast of Lake Zwai; $7^{\circ} 44' N.$, $39^{\circ} 24' E.$

Devark. Village northeast of Gondar near the base of Simien Mountains; $13^{\circ} 8' N.$, $37^{\circ} 55' E.$

Dungulbar. Village on west side of Lake Tana, Gojjam Province; $11^{\circ} 58' N.$, $37^{\circ} 2' E.$

Gatelo (Gatalo). Southeast of Lake Abaya in Sidamo Province; $5^{\circ} 57' N.$, $38^{\circ} 12' E.$

Gedeb Mountains. Near Dodolo on south side of upper Webi Shebeli River in Bale District; $6^{\circ} 55' N.$, $39^{\circ} 10' E.$

Gendoa River. A tributary of the Atbara River flowing northwest to the Sudan border, Dembea Province; $12^{\circ} 30' N.$, $36^{\circ} 30' E.$

Gondar. Well-known town a few miles north of Lake Tana; $12^{\circ} 34' N.$, $37^{\circ} 31' E.$

Harar (Harrar). An important town southeast of Diredawa and about 100 miles southeast of Jibuti; $9^{\circ} 15' N.$, $42^{\circ} 10' E.$

Harsi Barri. In Ogaden district near boundary of British Somaliland about 200 miles southeast of Harar.

Haud. Elevated country along the British Somaliland border about 200 miles due south of Berbera.

Metemma. Ethiopian village at Sudan border opposite Gallabat; $12^{\circ} 58' N.$, $36^{\circ} 10' E.$

Shala, Lake. A Rift Valley lake, about 100 miles south, slightly southwest, of Addis Ababa; $7^{\circ} 25' N.$, $38^{\circ} 30' E.$

Sheik Hussein. South side of Webi Shebeli River about 100 miles south of Awash railway station; $7^{\circ} 38' N.$, $40^{\circ} 43' E.$

Tana (Tsana), Lake. In Amhara Province about 500 miles due south of Suakin and 400 miles west of Jibuti; 12° N., 37° 15' E.

Webi Shebeli River. A well-known river rising in western Arusi and flowing east and southeast through broken foothills to Italian Somaliland.

Zegi. On Lake Tana, which see.

FRENCH CONGO

Abanga River. A confluent of the Ogowe River in the Gaboon District.

Fan Topat. On the Ogowe River.

Lambarene. On the Ogowe River about 100 miles due east of Cape Lopez.

Ngama. On the Ogowe River.

KENYA COLONY

Aberdare Mountains. A range of mountains about halfway between Lake Naivasha and Mount Kenya. Summits said to be 11,000–12,000 feet.

Athi Plains. North and east of Nairobi.

Elmenteita, Lake. Near Elmenteita Station (6,012 feet) on the Kenya-Uganda Railway between Naivasha and Nakuru.

Gilgil. Between Naivasha and Nakuru. Alt. 6,581 feet.

Kenya, Mount. Situated about 135 miles north of Nairobi. Alt. 17,040 feet.

Kijabe. Kijabe Station is on the Kenya-Uganda Railway between Nairobi and Naivasha. Alt. 6,787 feet.

Lagari. Mau District, south of Elburgon Range, west of the Rift Valley.

Lukenya Hills. On the Athi Plains east of Nairobi. Also spelled Alucania, Ulucania, Ulukenia, Lukenya, etc.

Machakos. Close to Ulu Station (5,252 feet) on the Kenya-Uganda Railway, approximately 30 miles southeast of Nairobi. Alt. about 5,000 feet.

Molo. A station on the Kenya-Uganda Railway between Nakuru and Londiani. Alt. 8,064 feet.

Nairobi. Capital of the colony with station on the railway 327 miles from Mombasa and 260 miles from Kisumu. Alt. 5,452 feet.

Naivasha. A station on the Kenya-Uganda Railway close to the famous lake from which it takes its name. Alt. 6,231 feet.

Tsavo. A station on the Kenya-Uganda Railway 136 miles northwest of Mombasa. Alt. 1,525 feet.

Voi. A station on the Kenya-Uganda Railway 103 miles northwest of Mombasa. Alt. 1,834 feet.

MOROCCO

Atlas Mountains. The well-known range running approximately east and west across the country.

Mogador. Principal seaport on the west coast, lying northeast of the Canary Islands.

NIGERIA

Agberi. On the Niger River in southern Nigeria, about seventy-five miles from the mouth of the river.

Marama. Not located.

Zungeru. An important town in northern Nigeria, in the Niger Province.

SOMALILAND PROTECTORATE

Berbera. Chief port and capital town, lying due south of and opposite Aden, Arabia.

Betteran. About halfway between Berbera and Laferug.

Durban. About twenty miles east of Berbera, near the coast.

Halleh. Thirty miles southeast of Berbera, at the foot of the Golis Mountains.

Hullieh (Hullier). A few miles southeast of Hargeisa.

Mandera. At base of Golis Mountains, near Jerato Pass.

Sheik. In the Golis (Goolis) Mountains. It is the seat of Government and connected by fifty miles of motor road with Berbera. Rainfall 11.7 inches per annum. Alt. 4,500 feet.

Toyo Plain. South of Berbera 150 miles, in the Haud.

SOUTHWEST PROTECTORATE (GERMAN SOUTHWEST AFRICA)

Namib Desert. Coastal region of Southwest Africa.

SPANISH GUINEA

Benito River. Principal river of Spanish Guinea.

SUDAN

Durrur (Dooroor). Near Suakin, which see.

Suakin. The old port on the Red Sea, now superseded by Port Sudan, which lies a little north of Suakin.

Wadi Halfa. On the Nile near the northern border of the Anglo-Egyptian Sudan.

TANGANYIKA TERRITORY (GERMAN EAST AFRICA)

Dodoma. Chief town of Ugogo and the Central Province. On the Central Railway about 260 miles west of Dar es Salaam. Alt. 3,890 feet.

Kitete. Mahenge District.

Mahenge. Chief town of Mahenge District. Situated about 140 miles due south of Kilosa on the Central Railway.

Manka, Lake. Seven miles south of Mkomazi Station on the Tanga-Moshi line and thirty miles northwest of Mombo Station.

Matameras. Mahenge District.

Mitiangu. Mahenge District.

Mnazi. At the northern foot of the western Usambara Mountains, forty miles due north of Lushoto.

Uleia. A native village on the Kilosa-Iringa Road twenty miles south of Kilosa on the Central Railway.

Ulambo. Mahenge District.

UGANDA

Bihunga (Behungi). On the eastern slopes of the Ruwenzori Mountains. Alt. 8,300 feet.

Budu (Buddu) shore. The northwestern shore of Lake Victoria in the Budu District.

Bulukutoni. On the road from Rhino Camp to Arua. Alt. 2,500 feet.

Bunyoni, Lake. In extreme southwestern Uganda.

Kigezi District. In the southwestern corner of the Western Province.

Kisolo. In the Kigezi District, which see.

Northern Province. Lying between the West Nile Province and the Eastern Province.

Rhino Camp. On the west bank of the Nile at 2° 55' N., in the West Nile Province (former Lado Enclave).

Ruwenzori Mountains. Lying between Lakes Albert and Edward in the Western Province and on the Uganda-Congo border. Maximum alt. 16,794 feet.

Sabinio, Mount. One of the Kivu volcanoes which lies partly in Uganda and partly in Belgian territory. Alt. 8,500 feet.

Sese Islands. A group of islands in the northwest corner of Lake Victoria but southwest from Entebbe.

White Nile District. The region lying between Lake Albert and Nimule on the Uganda-Sudan border.

LIST OF SPECIES IN FIELD MUSEUM

(*signifies a type or paratype series)

Class REPTILIA

Order TESTUDINATA

Family TESTUDINIDAE

Testudo pardalis babcocki Loveridge *Testudo tornieri* Siebenrock
Kinixys belliana Gray

Family PELOMEDUSIDAE

Pelusios sinuatus (Smith) *Pelomedusa galeata* (Schoepff)

Order SQUAMATA

Family TYPHLOPIDAE

Typhlops punctatus punctatus (Leach) *Typhlops steinhausi* Werner

Family BOIDAE

Python sebae (Gmelin)

Family COLUBRIDAE

Subfamily COLUBRINAE

<i>Natrix fuliginoides</i> (Günther)	<i>Coluber florulentulus</i> Geoffroy
<i>Natrix olivacea olivacea</i> (Peters)	<i>Coluber hippocrepis</i> Linnaeus
<i>Natrix viperina</i> (Latreille)	<i>Aeluroglena cucullata</i> Boulenger
<i>Bothrolycus aler</i> Günther	<i>Chlorophis carinatus</i> Andersson
<i>Pseudoboodon lemniscatus</i> (Duméril and Bibron)	<i>Chlorophis heterodermus</i> Hallowell
<i>Boaedon guttatus</i> (Smith)	<i>Chlorophis neglectus</i> (Peters)
<i>Boaedon lineatus</i> Duméril and Bibron	<i>Chlorophis irregularis</i> (Leach)
<i>Boaedon olivaceus</i> (A. Duméril)	<i>Philothamnus semivariatus semivariatus</i> (Smith)
<i>Lycophidion capense capense</i> (Smith)	<i>Gastropyxis smaragdina</i> (Schlegel)
<i>Lycophidion fasciatum</i> (Günther)	<i>Hapsidophrys lineata</i> Fischer
<i>Mehelya chanleri chanleri</i> (Stejneger)	<i>Coronella semiornata semiornata</i> Peters
<i>Pseudaspis cana</i> (Linnaeus)	<i>Grayia tholloni</i> Mocquard
<i>Coluber rhodorachis</i> (Jan)	<i>Grayia ornata</i> (Bocage)
	<i>Duberria lutrix shiranum</i> (Boulenger)

Subfamily DASYPELTINAE

Dasypeltis scaber (Linnaeus)

Subfamily BOIGINAE

<i>Boiga pulverulenta</i> (Fischer)	<i>Dromophis lineatus</i> (Duméril and Bibron)
<i>Dipsadoboa unicolor</i> Günther	<i>Psammophis subtaeniatus</i> Peters
<i>Crotaphopeltis hotamboeia hotamboeia</i> (Laurenti)	<i>Psammophis sibilans</i> (Linnaeus)
<i>Amplorhinus nototaenia</i> (Günther)	<i>Psammophis furcatus</i> Peters
<i>Malpolon monspessulanus monspessulanus</i> (Hermann)	<i>Psammophis biseriatus</i> Peters
* <i>Trimerorhinus tritaeniatus multisquamis</i> Loveridge	<i>Psammophis crucifer</i> (Daudin)
<i>Rhamphophis rostratus</i> Peters	<i>Macroprotodon cucullatus</i> (Geoffroy)
	<i>Thelotornis kirtlandii</i> (Hallowell)
	<i>Dispholidus typus</i> (Smith)
	<i>Miodon gabonensis</i> (Duméril)
	<i>Elapops modestus</i> Günther

Subfamily ELAPINAE

<i>Elapsoidea güntherii</i> Bocage	<i>Elaps lacteus</i> (Linnaeus)
<i>Naja melanoleuca</i> Hallowell	<i>Dendraspis jamesoni kaimosae</i> Loveridge
<i>Naja nigricollis nigricollis</i> Reinhardt	<i>Dendraspis angusticeps</i> (Smith)
<i>Naja goldii</i> Boulenger	

Family VIPERIDAE

<i>Causus rhombeatus</i> (Lichtenstein)	<i>Bitis cornuta</i> (Daudin)
<i>Causus resimus</i> (Peters)	<i>Bitis caudalis</i> (Smith)
<i>Causus lichtensteini</i> (Jan)	<i>Echis carinatus</i> (Schneider)
<i>Vipera hindii</i> Boulenger	<i>Atheris squamigera</i> (Hallowell)
<i>Bitis arielans</i> (Merrem)	<i>Atheris nilschei</i> Tornier
<i>Bitis gabonica</i> (Duméril and Bibron)	<i>Atractaspis bibronii</i> Smith
<i>Bitis nasicornis</i> (Shaw)	<i>Atractaspis microlepidota</i> Günther

Suborder LACERTILIA

Family GEKKONIDAE

<i>Hemitheconyx caudicinctus</i> (Duméril)	<i>Hemidactylus sinaitus</i> Boulenger
<i>Stenodactylus sthenodactylus sthenodactylus</i> (Lichtenstein)	<i>Hemidactylus brookii</i> Gray
<i>Palmatogecko rangei</i> Andersson	<i>Lygodactylus picturatus picturatus</i> (Peters)
<i>Gymnodactylus trachyblepharus</i> Boettger	<i>Lygodactylus picturatus gutturalis</i> (Bocage)
<i>Cnemaspis dickersoni</i> (Schmidt)	<i>Tarentola mauritanica mauritanica</i> (Linnaeus)
<i>Hemidactylus mabouia</i> (Moreau de Jonnés)	<i>Tarentola annularis</i> (Geoffroy)
<i>Hemidactylus fasciatus</i> Gray	<i>Pachydactylus mariquensis</i> Smith
<i>Hemidactylus ituriensis</i> Schmidt	<i>Pachydactylus ausleri</i> Hewitt

Family AGAMIDAE

<i>Agama mutabilis</i> Merrem	<i>Agama agama</i> subsp.
<i>Agama flavimaculata</i> (Rüppell)	<i>Agama agama lionotus</i> Boulenger
<i>Agama pallida</i> Reuss	* <i>Agama agama usambarae</i> Barbour & Loveridge
<i>Agama hispida brachyura</i> Boulenger	<i>Agama planiceps planiceps</i> Peters
<i>Agama hispida aculeata</i> Merrem	* <i>Agama planiceps caudospinosa</i> Meek
<i>Agama atra atra</i> Daudin	<i>Agama atricollis</i> Smith
<i>Agama mossambica montana</i> Barbour and Loveridge	<i>Agama cyanogaster</i> (Rüppell)
<i>Agama agama agama</i> (Linnaeus)	<i>Uromastix ocellatus</i> Lichtenstein

Family ZONURIDAE

<i>Zonurus macropholis</i> Boulenger	<i>Zonurus cordylus cordylus</i> (Linnaeus)
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Family VARANIDAE

<i>Varanus albigularis angolensis</i> Schmidt	<i>Varanus ocellatus</i> Heyden
<i>Varanus niloticus</i> (Linnaeus)	

Family LACERTIDAE

<i>Lacerta jacksoni</i> Boulenger	<i>Eremias spekkii spekkii</i> Günther
<i>Algiroides boulengeri</i> Peracca	<i>Eremias mucronata</i> (Blanford)
<i>Lalasia l. longicaudata</i> (Reuss)	<i>Eremias guttulata guttulata</i> (Lichtenstein)
<i>Lalasia longicaudata revoili</i> (Vaillant)	<i>Eremias rubropunctata</i> (Lichtenstein)
<i>Philochortus hardeggeri</i> (Steindachner)	<i>Eremias lineo-ocellata</i> Duméril and Bibron
<i>Acanthodactylus pardalis pardalis</i> (Lichtenstein)	<i>Scapleira reticulata</i> Bocage
<i>Acanthodactylus boskianus asper</i> (Audouin)	<i>Scapleira ctenodactyla</i> (Smith)
<i>Acanthodactylus scutellatus scutellatus</i> (Audouin)	<i>Aporosaura anchitetae</i> (Bocage)
	<i>Holaspis guentheri</i> Gray

Family GERRHOSAURIDAE

<i>Gerrhosaurus major major</i> Duméril	<i>Gerrhosaurus f. flavigularis</i> Wiegmann
<i>Gerrhosaurus major zechi</i> Tornier	<i>Gerrhosaurus f. nigrolineatus</i> Hallowell

Family SCINCIDAE

<i>Mabuya maculilabris</i> (Gray)	<i>Siaphos graueri graueri</i> (Sternfeld)
<i>Mabuya polytropis</i> Boulenger	* <i>Siaphos meleagris helleri</i> Loveridge
<i>Mabuya blandingii</i> (Hallowell)	<i>Ablepharus wahlbergii</i> (Smith)
<i>Mabuya brevicollis</i> (Wiegmann)	<i>Scincus scincus scincus</i> (Linnaeus)
<i>Mabuya megalura</i> (Peters)	<i>Chalcides ocellatus ocellatus</i> (Forskål)
<i>Mabuya quinquetaeniata obsti</i> Werner	<i>Chalcides ocellatus tiligugu</i> (Gmelin)
<i>Mabuya quinquetaeniata quinquetaeniata</i> (Lichtenstein)	<i>Chalcides bottegi bottegi</i> Boulenger
<i>Mabuya varia varia</i> (Peters)	<i>Chalcides bottegi thierryi</i> Tornier
<i>Mabuya varia damaranus</i> (Peters)	<i>Chalcides delislii</i> Boulenger
<i>Mabuya striata</i> (Peters)	<i>Chalcides sepoides</i> (Audouin)
<i>Emoia breviceps</i> (Peters)	<i>Scelotes bipes</i> (Linnaeus)
<i>Riopa fernandi</i> (Burton)	<i>Feylinia currori currori</i> Gray
<i>Riopa sundevallii</i> (Smith)	<i>Typhlosaurus meyeri</i> Boettger
	<i>Typhlosaurus vermis</i> Boulenger

Suborder RHIPTOGLOSSA

Family CHAMAELEONTIDAE

<i>Chamaeleon chamaeleon</i> (Linnaeus)	<i>Chamaeleon b. höhnelii</i> Steindachner
<i>Chamaeleon basiliscus</i> Cope	<i>Chamaeleon pumilus</i> Daudin
<i>Chamaeleon senegalensis</i> Daudin	<i>Chamaeleon affinis</i> Gray
<i>Chamaeleon gracilis gracilis</i> Hallowell	<i>Chamaeleon namaquensis</i> Smith
<i>Chamaeleon dilepis dilepis</i> Leach	<i>Chamaeleon cristatus</i> Stutchbury
<i>Chamaeleon dilepis roperi</i> Boulenger	<i>Chamaeleon jacksoni</i> Boulenger
<i>Chamaeleon b. bitaeniatus</i> Fischer	<i>Chamaeleon johnstoni</i> Boulenger
<i>Chamaeleon b. ellioti</i> Günther	* <i>Rhampholeon kerstenii robecchii</i> Boulenger
<i>Chamaeleon b. rudis</i> Boulenger	
	<i>Rhampholeon spectrum</i> (Buchholz)

Class AMPHIBIA

Order ECAUDATA

Family PIPIDAE

* <i>Xenopus laevis bunyoniensis</i> Loveridge	<i>Xenopus laevis victorianus</i> Ahl
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Family BUFONIDAE

* <i>Bufo regularis kisolensis</i> Loveridge	<i>Bufo gariensis gariensis</i> Smith
<i>Bufo regularis regularis</i> Reuss	<i>Bufo superciliaris</i> Boulenger
<i>Bufo camerunensis camerunensis</i> Parker	<i>Bufo carens</i> Smith
<i>Bufo funereus</i> Bocage	<i>Bufo blanfordii</i> Boulenger
<i>Bufo tuberosus</i> Günther	* <i>Bufo osgoodi</i> Loveridge
	<i>Nectophryne afra</i> Buchholz and Peters

Family RANIDAE

<i>Scotobleps gabonicus</i> Boulenger	<i>Rana ansorgii</i> Boulenger
<i>Trichobatrachus robustus</i> Boulenger	<i>Rana galamensis bravana</i> (Peters)
<i>Astylosternus diadematus</i> Werner	<i>Rana albolabris</i> Hallowell
<i>Rana goliath</i> Boulenger	<i>Petropedetes newtonii</i> (Bocage)
<i>Rana crassipes</i> Buchholz and Peters	<i>Phrynobatrachus natalensis</i> (Smith)
<i>Rana subsigillata</i> Duméril	<i>Phrynobatrachus graueri</i> (Nieden)
<i>Rana occipitalis</i> Günther	<i>Phrynobatrachus dendrobates</i> (Boulenger)
<i>Rana delalandii delalandii</i> (Duméril and Bibron)	<i>Phrynobatrachus plicatus</i> (Günther)
<i>Rana fuscigula angolensis</i> Bocage	<i>Phrynobatrachus acridoides</i> (Cope)
<i>Rana cooperi</i> Parker	<i>Arthroleptis variabilis</i> Matschie
<i>Rana aequiplicata</i> Werner	<i>Arthroleptis poecilnotus</i> Peters
* <i>Rana oxyrhynchus</i> Smith	<i>Arthroleptis minutus</i> Boulenger
<i>Rana mascareniensis mascareniensis</i> Duméril and Bibron	<i>Arthroleptis ogoensis</i> Boulenger
<i>Rana m. uzungwensis</i> Loveridge	<i>Arthroleptis rouxi</i> Nieden
<i>Rana mascareniensis</i> subsp.	<i>Hemisus marmoratum marmoratum</i> (Peters)
<i>Rana mascareniensis venusta</i> Werner	

Family POLYPEDATIDAE

<i>Chiromantis rufescens</i> (Günther)	<i>Hyperolius picturatus</i> Peters
<i>Leptopelis bocagii</i> (Günther)	<i>Hyperolius kivuensis</i> Ahl
<i>Leptopelis brevisrostris</i> (Werner)	<i>Hyperolius multicolor</i> Ahl
<i>Leptopelis palmatus</i> (Peters)	<i>Hyperolius graueri</i> Ahl
<i>Leptopelis aubryi</i> (Duméril)	<i>Hyperolius argentovittis</i> Ahl
<i>Leptopelis ocellatus</i> (Mocquard)	<i>Hyperolius decoratus</i> Ahl
<i>Leptopelis karissimbensis</i> Ahl	<i>Hyperolius punctulatus</i> (Bocage)
<i>Megalixalus fornasinii</i> (Bianconi)	<i>Hyperolius striolatus</i> Peters
<i>Megalixalus dorsalis</i> (Peters)	<i>Hyperolius undulatus</i> (Boulenger)
<i>Megalixalus leptosomus</i> (Peters)	<i>Hyperolius simus</i> Ahl
<i>Hyperolius</i> spp.	<i>Hyperolius cinnamome-ventris</i> Bocage
<i>Hyperolius steindachneri</i> Bocage	<i>Hyperolius nasutus</i> Günther
<i>Hyperolius ocellatus</i> Günther	<i>Mocquardia obscura</i> (Boulenger)
<i>Hyperolius concolor</i> (Hallowell)	<i>Kassina senegalensis</i> (Duméril and Bibron)
<i>Hyperolius pleurotaenius</i> (Boulenger)	

Family BREVICIPITIDAE

<i>Breviceps adspersus</i> Peters	<i>Phrynomerus bifasciatus</i> (Smith)
	<i>Phrynomerus annectens</i> (Werner)

TESTUDINIDAE

Testudo pardalis babcocki Loveridge.

Testudo pardalis Meek, Field Mus., Zool. Ser., 1, p. 184, 1897 (not of Bell).

Testudo pardalis babcocki Loveridge, Bull. Mus. Comp. Zool., 79, p. 4, 1935—
Mount Debasien, Karamoja, Kenya Colony, 5,500 feet.

1 (2778): Southwest Mount Kenya, Kenya Colony (Akeley, 1906).

1 (2779): Kenya Colony (Akeley, 1906).

The specimen from Toyo plain, collected by Akeley in 1896, has not been traced.

Testudo tornieri Siebenrock.

Testudo tornieri Siebenrock, Sitzber. Akad. Wiss. Wien, Math.-Nat. Kl., 24, p. 185, 1903—Bussisi (i.e. Rusisi), Belgian Ruanda-Urundi.

Testudo (Malacochersus) tornieri Lindholm, Zool. Anz., Leipzig, 81, p. 285, 1929.

4 (5616-9): Dodoma, Tanganyika Territory (Loveridge, 1921).

Kinixys belliana Gray.

Kinixys belliana Gray, Synopsis Rept., p. 69, 1831—habitat unknown.

Cinixys belliana Boulenger, Cat. Chel. Brit. Mus., p. 143, 1889; Meek, Field Mus., Zool. Ser., 7, p. 414, 1910.

1 (2272): Athi Plains, Kenya Colony (Akeley, 1906).

Though several races of *belliana* have been proposed by Hewitt, trinomials are not employed until there are more substantial grounds of proof that these races are not based on individual variations.

PELOMEDUSIDAE

Pelusios sinuatus (Smith).

Sternothaerus sinuatus Smith, Illus. Zool. S. Africa, 3, pl. 1, 1838—South Africa "in rivers to the north of 25° S. latitude"; Boulenger, Cat. Chel. Brit. Mus., p. 194, 1889.

1 (1780): Kenya Colony (Akeley, 1906).

Pelomedusa galeata (Schoepff).

Testudo galeata Schoepff, Hist. Testud., p. 12, pl. 3, fig. 1, 1792—"Habitat in India orientale, Carolina."

Pelomedusa galeata Boulenger, Cat. Chel. Brit. Mus., p. 194, 1889; Meek, Field Mus., Zool. Ser., 7, p. 414, 1910.

1 (2273): Lukenya Hills, Kenya Colony (Akeley, 1906).

TYPHLOPIDAE

Typhlops punctatus punctatus (Leach).

Acontias punctatus Leach, in Bowdich, Miss. Ashantee, p. 493, 1819—Fantee, Gold Coast.

Typhlops punctatus Boulenger, Cat. Snakes Brit. Mus., 1, p. 42, 1893.

1 (4034): Kribi River, Cameroon (Bates).

Midbody scale-rows 28. Total length 245 mm. Diameter 9 mm. Diameter included in the length 27 times. (23 to 28 times, see p. 20)

Trinomials are used, as in the outlying rain forests of the Usambara and Uluguru Mountains in East Africa there occurs a well-marked

race (*gierrai*) with occasional intermediates. The Kribi specimen is of the color form *congestus*, which cannot be considered either as a race or as a distinct species.

Typhlops steinhausi Werner.

Typhlops steinhausi Werner, Jahrb. Hamb. Wiss. Anst., 26, p. 209, 1909—Cameroon.

Typhlops batesii Boulenger, Ann. Mag. Nat. Hist., (8), 8, p. 370, 1911—Bitye, Cameroon.

1 (4035): Kribi River, Cameroon (Bates).

Midbody scale-rows 26. Total length 305 mm. Diameter 8 mm. Diameter included in the length 38 times.

This specimen has been compared with M.C.Z. 8242 from Lolodorf, Cameroon, previously identified as *steinhausi*; the latter has midbody scale-rows 26. Total length 365 mm. Diameter 9 mm. Diameter included in the length 40 times. In Werner's two cotypes the diameter was included from 41 to 45 times. Werner compares *steinhausi* with *elegans*. It is undoubtedly more closely related to *punctatus* from which it is to be distinguished only by its more elongate form and in possessing a preocular which is a trifle narrower than that of *punctatus*. For example, specimens of *punctatus* of 300 and 365 mm. have midbody diameters of 9 and 13 mm. respectively; this results in the diameter being included in the total length 23 to 28 times as against 38 to 49 times in *steinhausi* of the same size. This greater slenderness of *steinhausi* is immediately noticeable when a snake of that species is placed with a series of *punctatus*.

In 1915 the Museum of Comparative Zoology received from W. F. H. Rosenberg, of London, a topotype of *T. batesii* collected by Bates and in all probability identified by Boulenger. In looking up the description of *batesii* I find that Boulenger compared it with *punctatus*. He states "eyes hidden," while of *steinhausi* Werner wrote "eyes scarcely distinguishable." Elsewhere (Loveridge, 1933, p. 214) I have shown the fallaciousness of this character. Our specimen (M.C.Z. 11294) has: Midbody scale-rows 26, total length 394 (385+9) mm., diameter 8 mm.; diameter included in the length 49 times. Boulenger's types were from 39 to 40 times.

BOIDAE

Python sebae (Gmelin).

Coluber sebae Gmelin, Syst. Nat., 1, p. 1118, 1788—no type locality.

Python sebae Boulenger, Cat. Snakes Brit. Mus., 1, p. 86, 1893.

1 (12843): Ruchuru, Belgian Congo (Heller, 1925).

1 (12972): Kabengere, Belgian Congo (Zimmer, 1926).

1 (13121): Rhino Camp, Uganda (Zimmer, 1926).

These specimens have been identified by K. P. Schmidt and have not been examined by the author.

COLUBRIDAE (COLUBRINAE)

Natrix fuliginoides (Günther).

Coronella fuliginoides Günther, Cat. Snakes Brit. Mus., p. 39, 1858—West Africa.

Mizodon variegatus Peters, Monatsb. Akad. Wiss. Berlin, p. 358, 1861—Gold Coast.

Tropidonotus fuliginoides Boulenger, Cat. Snakes Brit. Mus., 1, p. 217, 1893.

1 (4030): Efulen, Cameroon (Bates).

3 (4031-3): Bitye, Cameroon (Bates).

Midbody scale-rows 15-17; ventrals 125-130; anal entire or divided; subcaudals 66-85; labials 7-8, fourth and fifth entering the orbit except on the right side of the head in Number 4033 where the fourth only enters; preoculars 2; postoculars 3; there is a wide variability in the relative length of the anterior and posterior chin-shields though the posterior are always the longer; the longest are one and two-thirds times the length of the anterior. Largest specimen measures 424 (294+130) mm.

On the basis of the variability of the Bitye series I have no hesitation in assigning *variegatus* (15 midbody scale-rows) to the synonymy of *fuliginoides* (17 midbody scale-rows); both types occur at Bitye and their coloration is identical.

Natrix olivacea olivacea (Peters).

Coronella olivacea Peters, Monatsb. Akad. Wiss. Berlin, p. 622, 1854—Tete, Mozambique.

Tropidonotus olivaceus Boulenger, Cat. Snakes Brit. Mus., 1, p. 227, 1893.

1 (12987): Kabengere, Belgian Congo (Zimmer, 1926).

Midbody scale-rows 19; ventrals 140; anal divided; subcaudals?; labials 8, fourth and fifth entering the orbit. A broad, dark, vertebral band; the lateral pigmentation encroaches on the edges of the ventrals.

Natrix viperina (Latreille).

Coluber viperinus Latreille, Hist. Nat. Rept., 4, p. 49, pl., 1802—near Brive, Dept. Correze, France (restricted).

Tropidonotus viperinus Boulenger, Cat. Snakes Brit. Mus., 1, p. 235, 1893.

3 (4039-41): Atlas Mountains, Morocco (Riggenbach).

Midbody scale-rows 21-23; ventrals 158-159; anal divided; subcaudals 56-66; labials 7, third and fourth entering the orbit. Largest specimen measures 438 (356+82) mm.

Bothrolycus ater Günther.

Bothrolycus ater Günther, Proc. Zool. Soc. Lond., p. 444, pl. lvii, fig. B, 1874—Cameroon; Boulenger, Cat. Snakes Brit. Mus., 1, p. 326, 1893.

2 (4001-2): Ja River, Cameroon (Bates).

Midbody scale-rows 17; ventrals 140-143; anal entire; caudals 31-32; labials 7, third, fourth, and fifth entering the orbit. Larger snake measures 416 (355+61) mm. The top of the head and nape of the younger snake is cream-colored in striking contrast to the white-flecked, black head of the adult.

Pseudoboodon lemniscatus (Duméril and Bibron).

Boaedon lemniscatum Duméril and Bibron, Erpét. Gén., 7, p. 365, 1854—Abyssinia (Ethiopia).

Boodon lemniscatus Boulenger, Cat. Snakes Brit. Mus., 1, p. 329, 1893.

Pseudoboodon gascae Peracca, Boll. Mus. Torin, 12, No. 273, p. 1, 1897—Maldi, Eritrea.

Lamprophis abyssinicus Mocquard, Bull. Mus. Paris, 12, p. 249, 1906—Akaki, Ethiopia.

1 (12526): Chilalo Mountains, Ethiopia (Osgood, 1926).

Midbody scale-rows 23; ventrals 206; anal entire; subcaudals 43; labials 8, third, fourth, and fifth entering the orbit; preocular 1; postoculars 2; temporals 1+2. Total length 805 (707+98) mm.

Boaedon guttatus (Smith).

Lycodon guttatus A. Smith, Illus. Zool. S. Africa, 3, pl. xxiii, 1843—beyond Kurrichane, Cape Colony.

Boodon guttatus Boulenger, Cat. Snakes Brit. Mus., 1, p. 331, 1893.

1 (16036): Kleinzee, Cape Province (Wecke, 1931).

Midbody scale-rows 21; ventrals 195; anal entire; subcaudals 62; labials 8, third, fourth, and fifth entering the orbit; postoculars 2. Total length 205 (167+38) mm.

Boaedon lineatus Duméril and Bibron.

Boaedon lineatus Duméril and Bibron, Erpét. Gén., 7, p. 363, 1854—Gold Coast.

Boodon lineatus Boulenger, Cat. Snakes Brit. Mus., 1, p. 332, 1893.

1 (3997): Ruwenzori Mountains, Uganda (Ruwenzori Expedition, 1906).

1 (3998): Cabiri, Angola (Ansorge).

- 1 (6976): Bunia, Belgian Congo (Heller, 1924).
3 (8980-1, 9883): Kisolo, Uganda (Heller, 1926).
6 (9906-8, 9916-7, 9920): Lake Bunyoni, Uganda (Heller, 1926).
6 (12826-31): Mambawanga, Belgian Congo (Heller, 1926).
7 (12844-9, 12851): Ruchuru, Belgian Congo (Heller, 1925).
1 (12897): Katobwe, Belgian Congo (Zimmer, 1926).
1 (12907): Kabengere, Belgian Congo (Zimmer, 1926).
1 (13128): Rhino Camp, Uganda (Zimmer, 1926).

Midbody scale-rows 27-31; ventrals 204-239; anal entire; subcaudals 43-67; labials 8-9, fourth and fifth, in all except No. 8981 where it is the fifth and sixth on one side, entering the orbit; postoculars 2; in many specimens both pairs of chin-shields are well separated on the median line, usually 2 pairs though frequently a third and fourth pair; in such cases it is difficult to draw the line as to what should be regarded as chin-shields and what as paired elongated scales; parietal shields always longer than the distance between the frontal and the end of the snout. Largest specimen (3997) measures 934 (801+133) mm.

In the stomach of the Kabengere snake is a multimammate mouse (*Mastomys coucha* subsp.) identified by Dr. Glover M. Allen.

Boaedon olivaceus (Duméril).

Holuropholis olivaceus Duméril, Rev. Mag. Zool., p. 466, 1856—Gaboon.

Boodon olivaceus Boulenger, Cat. Snakes Brit. Mus., 1, p. 335, 1893.

2 (3999-4000): Ja River, Cameroon (Bates).

1 (12850): Ruchuru, Belgian Congo (Heller, 1925).

Midbody scale-rows 29; ventrals 202-214; anal entire; subcaudals 38-44; labials 8, third, fourth, and fifth entering the orbit (Cameroon) or fourth and fifth (Congo). Largest specimen measures 742 (655+87) mm.

Lycophidion capense capense (Smith).

Lycodon capensis Smith, South Afr. Quart. Journ., 1, No. 5, p. 18, 1831—beyond Kurrichane about 25° S. Lat., Cape Colony.

Lycophidion capense Boulenger, Cat. Snakes Brit. Mus., 1, p. 339, 1893; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 405, 1910.

1 (2430): Nairobi, Kenya Colony (Akeley, 1905-7).

1 (4026): Harar, Ethiopia (Kristensen).

1 (4027): Belgian Congo (Delhage).

1 (12314): Uleia, Tanganyika Territory (Zimmer, 1927).

1 (12842): Ruchuru, Belgian Congo (Zimmer, 1925).

Midbody scale-rows 17; ventrals 176-203; anal entire; subcaudals 32-43; labials 8, third, fourth, and fifth entering the orbit except on No. 4026 where the third, fourth, fifth, and sixth enter on the right side, the fourth, fifth, and sixth on the left. Largest specimen measures 399 (360+39) mm.

Unfortunately the body of the Uleia snake is missing but as this village is only a few miles south of Kilosa I would suggest that it is an intermediate between *c. capense* and *c. acutirostre* with a low ventral count. It has the dark throat of *acutirostre* but so have the Harar and Ruchuru snakes.

It seems doubtful whether *L. abyssinicum* Boulenger is recognizable; the only character in which it differs from *capense* appears to be that its rostral is but little broader than deep instead of being twice as broad as deep as in *capense*. In this character the Harar specimen certainly does not differ from typical *capense*.

Lycophidion fasciatum (Günther).

Alopecion fasciatum Günther, Cat. Snakes Brit. Mus., p. 196, 1858—West Africa.

Lycophidium fasciatum Boulenger, Cat. Snakes Brit. Mus., 1, p. 342, 1893.

2 (4028-9): Ja River, Cameroon (Bates).

Midbody scale-rows 17; ventrals 176-179; anal entire; subcaudals 43-43; labials 7, third, fourth, and fifth entering the orbit. Larger specimen, a female, measures 368 (315+53) mm.

The gullet of the smaller snake is distended with an unbroken egg, whether of bird or lizard it would be hard to say; apparently there are others in its stomach.

Mehelya chanleri chanleri (Stejneger).

Simocephalus chanleri Stejneger, Proc. U. S. Nat. Mus., 16, p. 726, 1893—Wange, coast of Kenya Colony (not on Manda Island).

Simocephalus butleri Boulenger, Ann. Mag. Nat. Hist., (7), 20, p. 489, 1907—between Wau and Chak Chak, Bahr el Ghazel, Sudan.

Simocephalus unicolor Boulenger, Ann. Mag. Nat. Hist., (8), 5, p. 512, 1910—Fort Hall, Kenya Colony.

Mehelya (Simocephalus) somaliensis Lönnberg and Andersson, Ark. Zool., 8, No. 20, p. 2, 1913—Kismayu, coast of Italian Somaliland.

Female (13129): Rhino Camp, West Nile Province, Uganda (Zimmer, 1927).

Owing to their rarity in eastern and central Africa, the file snakes, formerly referred to *Simocephalus* Günther (which is preoccupied by *Simocephalus* of Schödl), have reached museums only as single specimens. This has had the unfortunate result of over-description as herpetologists had insufficient material to guide them as to what characters are constant and what are variable. Matters have been further complicated by the truncated tails of the majority of such specimens as are known.

My suspicions as to the validity of the numerous species described from this region were first aroused in 1919 when Dr. G. A. Boulenger advised that a specimen from Fort Hall, which is the type locality of *unicolor*, should be referred to *butleri* despite the fact that it had only two instead of three postoculars. In 1915 Boulenger had referred *somaliensis* to the synonymy of *butleri*.

Perhaps the character most stressed by each author was that of the number of pre- and postoculars. Elsewhere it has been shown (Barbour and Loveridge, 1928, Mem. Mus. Comp. Zool., 50, p. 114) that in the case of the allied *M. capensis* of which I obtained a series in the Usambara Mountains, either 1 or 2 preoculars and 1 or 2 postoculars are found in specimens from Amani. Obviously this character is not of specific importance in this genus.

The loreal, which was as long as deep in *chanleri*, was deeper than long in *butleri*, divided in *unicolor*, slightly longer than deep in *somaliensis* and *fechteri*.¹ The importance of these variations is annulled by the data of the second Fort Hall specimen and the Rhino Camp snake which agrees most closely with *chanleri* in the scalation of its head, except that the latter possesses an extra postocular formed by the splitting off of the upper posterior corner of the fourth labial.

Through the courtesy of Mr. H. W. Parker, I have been able to examine the types of both *butleri* and *unicolor* and find that the ventral counts of the latter are 234 instead of 228 as stated in the original description. The British Museum has also a snake from Somaliland which agrees with *fechteri* in lacking a postocular, a form which may be regarded as a northeastern race of *chanleri*.

The essential data, however, may best be presented for comparison in tabular form. The material is listed geographically from east to west.

¹ *Mehelia* (*Simocephalus*) *fechteri* Scortecci, Atti. Soc. ital. Milano, 68, p. 269, figs., 1930 (1929)—Abruzzi, Italian Somaliland.

Specimen	Midbody scale-rows	Ventrals	Caudals	Upper labials	Loreal	Precocular	Postocular	Infralabials in contact with anterior chin shields	Type locality
<i>fechteri</i> , type . . .	15	221	57	7	1	1	0	5	Abruzzi, Ital. Som.
British Museum . . .	15	225	51	7	1	1	0	5	Somaliland
<i>somaliensis</i> , type . . .	15	221	62	7	1	1	2	5	Kismayu, Ital. Som.
<i>chanleri</i> , type . . .	15	?	?	7	1	1	2	5	Wange, Kenya
<i>unicolor</i> , type . . .	15	234*	?	7	2	2	3	5	Fort Hall, Kenya
Nairobi Museum . . .	15	231	?	7	1	1	2	5	Fort Hall, Kenya
Field Museum . . .	15	238	?	7	1	1	2	5	Rhino Camp, Uganda
<i>butleri</i> , type	15	232	58	7	1	1	3	5	Wau to Chak Chak, Sudan

* Not 228 as in description.

There remains the coloration, which is best given in the words of the authors of each species.

M. fechteri: "Uniformly brown above, lips and chin grayish yellow. Also grayish yellow below. Transversely along the anterior border of each ventral scale is a grayish maroon stripe which is uninterrupted in most cases, occasionally interrupted in the median line especially on the posterior two-thirds of the body." (Translation.)

M. somaliensis: "Uniformly dark slate brown above, paler greyish brown below with light edges to the gastrosteges, throat whitish."

M. chanleri: "Color above, including the lateral portion of the gastrosteges, uniform olive gray; below yellowish."

M. unicolor: "Uniform dark brown above and beneath."

M. butleri: "Black above, each scale with a whitish basal spot; white beneath, ventrals edged with black on the side; lower surface of tail greyish." The type of *butleri* is a very young snake which accounts for its more vivid coloration; all other known examples are adult.

Nairobi Museum specimen, identified as *butleri* by Boulenger: Above slate black. Below gray black, each caudal and ventral scale with light edges, lateral keels of ventrals grayish white.

Field Museum specimen: Head scalation agreeing closely with that of *chanleri*. Above, head and neck black, dorsally also, but each scale with a whitish *apical* spot. Below white, ventrals edged with gray black on the sides; lower surface of tail grayish, each scale bordered with white.

These snakes are apparently ophiophagous. The following unpublished note refers to the specimen from Fort Hall mentioned above. This big snake was encountered by a native as it was in the act of swallowing a night adder (*Causus rhombeatus*). The native

struck at the file snake and ruptured its gullet so that the head and forepart of the night adder protruded. Nine inches had already been swallowed, the total length of the prey being twenty-one inches. The specimen was taken to Dr. Nunan who later (1919) presented it to the Nairobi Museum where it now is.

***Pseudaspis cana* (Linnaeus).**

Coluber canus Linnaeus, Syst. Nat., 1, p. 221, 1758—Indiis.

Pseudaspis cana Boulenger, Cat. Snakes Brit. Mus., 1, p. 373, 1893.

1 (16044): Kleinsee, Cape Province (Wecke, 1931).

Midbody scale-rows 27; ventrals 187; anal divided; subcaudals 70; labials 7, fourth entering the orbit. Total length 1,460 (1,180+280) mm. Uniformly blackish.

***Coluber rhodorachis* (Jan).**

Zamenis rhodorachis Jan, in De Filippi, Viagg. in Pers., p. 356, 1865.

Zamenis rhodorachis (sic) Boulenger, Cat. Snakes Brit. Mus., 1, p. 398, 1893.

Zamenis rhodorachus (sic) Meek, Field Mus., Zool. Ser., 1, p. 179, 1897.

1 (374): South of Toyo Plain, British Somaliland (Akeley, 1896).

Midbody scale-rows 19; ventrals 212; anal divided; subcaudals 131; labials 9, fifth and sixth entering the orbit. Total length 425 (300+125) mm.

***Coluber florulentulus* Geoffroy.**

Coluber florulentulus Geoffroy, Descr. de l'Egypte, Rept., pp. 146, 151, pl. viii, fig. 2, 1829—Egypt.

Zamenis florulentulus Boulenger, Cat. Snakes Brit. Mus., 1, p. 402, 1893.

1 (12707): West side Lake Tana, Ethiopia (Osgood, 1926).

Midbody scale-rows 21; ventrals 198; anal divided; subcaudals 94; labials 9, fifth and sixth entering the orbit. Total length 286 (219+67) mm.

***Coluber hippocrepis* Linnaeus.**

Coluber hippocrepis Linnaeus, Syst. Nat., 1, p. 226, 1758—"America."

Zamenis hippocrepis Boulenger, Cat. Snakes Brit. Mus., 1, p. 409, 1893.

1 (4042): Atlas Mountains, Morocco (Riggenbach).

Midbody scale-rows 27; ventrals 228; anal divided; subcaudals 96; labials 9-10 excluded from the orbit; the upper portion of the rostral is split off to form a small triangular scale between the prefrontals. Total length 426 (340+86) mm.

***Aeluroglena cucullata* Boulenger.**

Aeluroglena cucullata Boulenger, Ann. Mag. Nat. Hist., (7), 2, p. 132, 1898—
Golis Mountains, British Somaliland.

1 (12536): Sheik Hussein, Ethiopia (Osgood, 1926).

Midbody scale-rows 21; ventrals 201; anal divided; subcaudals 80; labials 8, fourth and fifth entering the orbit. Total length 362 (276+86) mm.

This, apparently the third known specimen, not only extends the geographical range but our knowledge of variation, for the type was a female with 216 ventrals and only 67 subcaudals.

***Chlorophis carinatus* Andersson.**

Chlorophis carinatus Andersson, Bihang Svenska Vetensk.-Akad. Handl., 27, part 4, No. 5, p. 9, 1901—Cameroon; Schmidt, Bull. Amer. Mus. Nat. Hist., 49, p. 74, 1923.

1 (12746): Walikale, Belgian Congo (Heller, 1924).

Midbody scale-rows 13; ventrals 148; anal entire; subcaudals 89; labials 9, fourth, fifth, and sixth entering the orbit; postoculars 2 on the right, 3 on the left; temporals 2+2. Total length 575 (402+173) mm.

I regard *carinatus* as the western rain-forest representative of the eastern *macrops*, these two species being separated from all other members of the genus by a lower number of midbody scale-rows. From *heterodermus*, this is apparently the only distinguishing character, for though *carinatus* was said to have 40 maxillary teeth and *heterodermus* less than 25, an examination of the three snakes with 13 scale-rows available for study, reveals the fact that none has more than 16 maxillary teeth on a side. In this respect they agree with seven *heterodermus* which have from 12 to 16 teeth on each side. One wonders if Andersson, when stating that there were 40 maxillary teeth, referred to the whole series, while Boulenger undoubtedly referred to those of one side.

Although I believe the two snakes to be distinct species, it is interesting to note the numerous records of *carinatus* occurring in the same localities together with *heterodermus*. Sternfeld (1909) records both species from Johann Albrechtshöhe, Barombi and Ebolowa in Cameroon. Müller (1910) records both from Mukonje farm near Mundame, Cameroon. The Museum of Comparative Zoology has both from Metet, Cameroon.

On the other hand, although *carinatus* has an extensive range in the Belgian and Portuguese Congo, as well as in Cameroon,

reaching eastward to Uganda and western Kenya (Loveridge, MSS.), it has not yet been recorded from west of the Cameroon though *heterodermus* is known from as far west as Sierra Leone. Schmidt (loc. cit. supra) records twenty-one examples of *carinatus* from seven different localities in the Ituri Forest without any *heterodermus* being found in these places. The range of the latter does not extend into Uganda and Kenya.

***Chlorophis heterodermus* Hallowell.**

Chlorophis heterodermus Hallowell, Proc. Acad. Nat. Sci. Phila., p. 54, 1857—Gaboon; Boulenger, Cat. Snakes Brit. Mus., 2, p. 97, 1894.

Chlorophis heterodermus pobeguini Chabanaud, Bull. Mus. Paris, 22, p. 371, fig. 12, 1917—French Guinea.

Chlorophis cyaneus Hecht, Zool. Anz. Leipzig, 81, p. 334, 1929—Ajoshöhe, Nyong River, Cameroon.

2 (4005-6): Efulen, Cameroon (Bates).

Midbody scale-rows 15; ventrals 150-158; anal entire; subcaudals 79 and ?; labials 9, fourth, fifth, and sixth entering the orbit; temporals 2+2; postoculars 2. Larger specimen measures 581 (428+153) mm.

1 (6975): Lake Kivu, Belgian Congo (Heller, 1924).

Midbody scale-rows 15; ventrals 174; anal entire; subcaudals 99; labials 9, fourth, fifth, and sixth entering the orbit; temporals 2+2; postoculars 2; preocular broadly separated from the frontal. Total length 725 (515+210) mm.

I was at first inclined to refer this Kivu specimen to *heterolepidotus* (Günther) despite its entire anal and low ventral count, for Sternfeld has recorded an entirely typical *heterolepidotus* from Lake Kivu. However, after prolonged consideration, it appears to me that more weight should be attached to the entire anal as a distinguishing character.

Some might wish to refer it to *C. bequaerti* Schmidt (1923, Bull. Amer. Mus. Nat. Hist., 49, p. 75) based on two snakes with an entire anal, single anterior temporal, 164-170 ventrals, and 123 subcaudals. It is interesting to note that Schmidt records three examples of *heterolepidotus* from Niangara, the type locality of *bequaerti*.

C. h. pobeguini was based on a single specimen which had 8 labials on the left side and 9 on the right, with only 2 labials entering the orbit, the fourth and fifth on the left and the fifth and sixth on the right, and a temporal arrangement of 2+1. These

are individual aberrations for out of half-a-dozen *heterodermus* from Cameroon in the Museum of Comparative Zoology two have the right side *pobeguini* arrangement of labials on one side of the head, the normal fourth, fifth, and sixth entering the orbit on the other. One of these snakes has 1+2 temporals, as has another with wholly normal labial arrangement; the remaining four have 2+2.

C. cyaneus was based on a snake which had 8 labials, fourth and fifth entering the orbit. For further discussion on the variability of the labials in this genus, see the remarks on *C. irregularis*.

***Chlorophis neglectus* (Peters).**

Philothamnus neglectus Peters, Monatsb. Akad. Wiss. Berlin, p. 890, 1866—Prazo Boror, Mozambique.

Chlorophis neglectus Boulenger, Cat. Snakes Brit. Mus., 2, p. 94, 1894; Meek, Field Mus., Zool. Ser., 7, p. 406, 1910; Loveridge, U. S. Nat. Mus., Bull. 151, p. 22, 1929.

3 (2256-7): Kijabe, Kenya Colony (Akeley, 1905-6).

1 (2260): Kenya Province, Kenya Colony (Akeley, 1905-6).

3 (2263-5): Athi River, Kenya Colony (Akeley, 1905-6).

1 (2266): Lake Elmenteita, Kenya Colony (Akeley, 1905-6).

1 (2270): Voi, Kenya Colony (Akeley, 1905-6).

Midbody scale-rows 15; ventrals 157-171; anal divided; subcaudals 90-120; labials 8, fourth and fifth entering the orbit except on the right side of Number 2265 where there are 9 labials of which the fifth and sixth enter the orbit. Largest specimen measures 917 (648+269) mm.

With the exception of the Elmenteita snake which was omitted, the above series are the ones referred to in Meek's paper cited above. Of the 36 lots of figures given by Meek only 11 are in agreement with the counts made here, the most misleading are 13 midbody scale-rows given for an Athi River snake and 85 subcaudals for the Voi specimen, which in reality has the end of its tail missing.

***Chlorophis irregularis* (Leach).**

Coluber irregularis Leach, in Bowdich, Miss. Ashantee, p. 494, 1819—Ashanti, Gold Coast.

Ahaetulla emini Günther, Ann. Mag. Nat. Hist. (6), 1, p. 325, 1888—Monbuttu, Belgian Congo.

Chlorophis schubotzi Sternfeld, Wiss. Ergebn. Deutsch-Zentral-Afrika-Exped., 4, p. 269, fig., 1912—Bwanja, near Bukoba, Tanganyika Territory.

Recently Flower (1933, Proc. Zool. Soc. Lond., p. 806) synonymized *emini* with *irregularis*, using these words: "The common

green snakes of the Blue and White Niles have been referred to two species *Chlorophis irregularis* and *Chlorophis emini*, but from the Sudan specimens that I have seen I am unable to distinguish these as 'species,' as the 'keels' on the ventral shields may be perceptible, just perceptible, or not perceptible."

Werner in 1908 (1907, Sitzungsber. Akad. Wiss. Wien, 116, abt. 1, p. 49) records both species from the Bahr el Gebel. Sternfeld (1912, loc. cit. supra, pp. 268-270) records both from Kisenji. I listed both from Yala River, Kakamega (1916, Journ. E. Africa and Uganda Nat. Hist. Soc., Nairobi, pp. 40 and 45) and invited attention to the variation displayed. Shortly after that paper was published, a third collection was received from the same source, the unpublished data from which, so far as it relates to the species under discussion, is as follows:

The *irregularis* type, with ventral keels indicated:

Number of snakes	Number of supralabials	
8	9	4th, 5th and 6th entering orbit
2	9-10	4th, 5th and 6th entering orbit
1	10-10	4th, 5th and 6th entering orbit

The *emini* type, without ventral keels:

Number of snakes	Number of supralabials	
1	8-7	3rd, 4th and 5th entering orbit
1	8-7	4th, 5th, 6th and 3rd, 4th, 5th entering orbit
1	8	3rd, 4th and 5th entering orbit
2	8	4th, 5th and 6th entering orbit
2	8-9	4th, 5th and 6th entering orbit
4	9-8	4th, 5th and 6th entering orbit
1	9-8	4th, 5th and 3rd, 4th, 5th entering orbit
1	9	4th, 5th, 6th and 5th, 6th entering orbit
14	9	4th, 5th and 6th entering orbit

The position appears to be that on the extreme West Coast keels are always present on the ventrals but that in the central and eastern parts of its range *irregularis* may or may not have keels, all the way from Khartoum to Lake Nyasa. As there are no scale or color characters by which one might retain *emini* as an eastern race, I concur with Flower in regarding it as a strict synonym of *irregularis*.

Chlorophis schubotzi was proposed by Sternfeld for a snake taken with *irregularis* at Bwanja near Bukoba. In passing, I might add that *emini* has been reported from Bukoba by several authors. *C. schubotzi* was differentiated by the possession of seven supralabials of which the third, fourth, and fifth entered the orbit. As will be seen from the variation recorded above, this condition occurs on

one side of two Yala River snakes, while another has 8 labials, the third, fourth, and fifth entering the orbit. I do not think that there was any justification for naming *schubotzi* as distinct from *irregularis*. Below, however, I list the Field Museum material in three groups, first *irregularis* with keels on the ventrals, then *emini* without such lateral keels, finally three individuals which have the same labials entering the orbit as had the holotype of *schubotzi* but 8 upper labials, not 7 as was the case with *schubotzi*.

2 (12966-7): Kabengere, Belgian Congo (Zimmer, 1926).

Midbody scale-rows 15; ventrals 159-160; anal divided; subcaudals 101-104; labials 9, fourth, fifth, and sixth entering the orbit; preocular only slightly separated from the frontal, practically in contact on the left side of the head in one snake. Larger specimen measures 847 (598+249) mm.

2 (4007-8): Mount Ruwenzori, Uganda (Ruwenzori Exped., 1906).

5 (8976-7, 8979, 9909-10): Lake Bunyoni, Uganda (Heller, 1925).

1 (12729): Metemma, Ethiopia (Osgood, 1927).

3 (12874-5, 12880): Katobwe, Belgian Congo (Zimmer, 1926).

1 (12977): Kabengere, Belgian Congo (Zimmer, 1926).

Midbody scale-rows 15; ventrals 154-179; anal divided; subcaudals 91-134; labials 9, fourth, fifth, and sixth entering the orbit *except on one side* of the head in Nos. 4008, 9909, and 12880 where there are only 8 labials, of which the third, fourth, and fifth enter the orbit (see other material below). Largest specimen measures 896 (614+282) mm.

1 (8982): Bihunga Escarpment, Uganda (Heller, 1925).

1 (12870): Katobwe, Belgian Congo (Zimmer, 1926).

1 (12988): Kabengere, Belgian Congo (Zimmer, 1926).

Midbody scale-rows 15; ventrals 160-163; anal divided; subcaudals 109 in all three snakes; labials 8, third, fourth, and fifth entering the orbit. Largest specimen measures 890 (610+280) mm.

***Philothamnus semivariiegatus semivariiegatus* (Smith).**

Dendrophis (Philothamnus) semivariiegatus Smith, Illus. Zool. S. Africa, 3, pls. lix, lx, and lxiv, fig. 1, 1840—Bushman Flat and country beyond Kurichane, Cape Colony.

Philothamnus semivariiegatus Boulenger, Cat. Snakes Brit. Mus., 2, p. 99, 1894.

Philothammus semivariiegatus (sic) Meek, Field Mus., Zool. Ser., 1, p. 179, 1897.

1 (373): Sheik, Golis Mountains, British Somaliland (Akeley, 1896).

1 (12329): Ulambo, Tanganyika Territory (Zimmer, 1926).

3 (12974, 12976, 12986): Kabengere, Belgian Congo (Zimmer, 1926).

Midbody scale-rows 15; ventrals 171–189; anal divided; subcaudals 119–136; labials 9, fourth, fifth, and sixth entering the orbit; temporals 2+2 on seven sides, 1+2 on three sides. Largest specimen measures 989 (652+337) mm.

Gastropyxis smaragdina (Schlegel).

Dendrophis smaragdina Schlegel, Essai Phys. Serp., 2, p. 237, 1837—Gold Coast.

Gastropyxis smaragdina Boulenger, Cat. Snakes Brit. Mus., 2, p. 103, 1894.

2 (4022–3): Ja River, Cameroon (Bates).

Midbody scale-rows 15; ventrals 154–155; anal divided; subcaudals 150–151; labials 9, fifth and sixth entering the orbit (damaged in No. 4023); temporals 1+2. Larger specimen measures 990 (602+388) mm.

Hapsidophrys lineata Fischer.

Hapsidophrys lineatus Fischer, Abh. Natur. Ver. Hamburg, 3, p. 111, pl. ii, fig. 5, 1856—Elmine, West Africa (i.e. Elmina, Gold Coast).

Hapsidophrys lineata Boulenger, Cat. Snakes Brit. Mus., 2, p. 104, 1894.

1 (4021): Bitye, Cameroon (Bates).

Midbody scale-rows 15, ventrals 160; anal entire; subcaudals?; labials 8, fourth and fifth entering the orbit on the right side; on the left side, however, there are only 6 labials owing to a fusion of the sixth, seventh, and eighth; temporals 2+2. Head and body measure 680 mm., tail mutilated.

Coronella semiornata semiornata Peters.

Coronella semiornata Peters, Monatsb. Akad. Wiss. Berlin, p. 622, 1854—Tete, Mozambique; Boulenger, Cat. Snakes Brit. Mus., 2, p. 195, 1894; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 405, 1910.

1 (2254): Voi, Kenya Colony (Akeley, 1905–7).

1 (2394): Kijabe, Kenya Colony (Akeley, 1905–7).

Midbody scale-rows 21; ventrals 182–190; anal divided; subcaudals 84–92; labials 8, fourth and fifth entering the orbit. Larger specimen measures 542 (415+127) mm.

Grayia tholloni Mocquard.

Grayia tholloni Mocquard, Bull. Soc. Philom. Paris, (8), 9, p. 11, 1897—French Congo; Boulenger, Proc. Zool. Soc. Lond., p. 951, fig., 1909.

1 (12877): Katobwe, Belgian Congo (Zimmer, 1926).

Midbody scale-rows 15; ventrals 137; anal divided; subcaudals?; labials 8, fourth entering the orbit. Head and body measure 402 mm.; tail mutilated.

Grayia ornata (Bocage).

Macrophis ornatus Bocage, Journ. Sci. Lisboa, 1, p. 67, 1866—Duque de Bragança, Angola.

Grayia ornata Boulenger, Proc. Zool. Soc. Lond., p. 944, fig., 1909.

1 (12978): Kabengere, Belgian Congo (Zimmer, 1926).

Midbody scale-rows 17; ventrals 144; anal divided; subcaudals 67; labials 8, fourth entering the orbit. Total length 1,215 (905+310) mm.

Duberria lutrix shiranum (Boulenger).

Homalosoma shiranum Boulenger, Cat. Snakes Brit. Mus., 2, p. 276, pl. xiii, fig. 1, 1894—Shiré Highlands, Nyasaland.

Duberria lutrix shiranum Loveridge, Bull. Mus. Comp. Zool., 74, p. 241, 1933.

1 (9884): Kisolo, Uganda (Heller, 1926).

4 (9911, 9915, 9918-9): Lake Bunyoni, Uganda (Heller, 1926).

Midbody scale-rows 15; ventrals 120-138; anal entire; subcaudals 23-31; labials 6, third and fourth entering the orbit except on right side of No. 9884 where there are only five labials; postocular 1; loreal absent in $1\frac{1}{2}$ instances, present in $3\frac{1}{2}$. Largest specimen measures 434 (384+50) mm. These snakes come from the area of intermediates referred to in the 1932 citation above and though they are predominantly *lutrix* in some respects they scarcely affect the averages.

COLUBRIDAE (DASYPELTINAE)

Dasypeltis scaber (Linnaeus).

Coluber scaber Linnaeus, Syst. Nat., 1, p. 223, 1758—Indiis.

Dasypeltis scabra Boulenger, Cat. Snakes Brit. Mus., 2, p. 354, 1894.

2 (4011-2): Harar, Ethiopia (Kristensen).

3 (9912-4): Lake Bunyoni, Uganda (Heller, 1926).

1 (12728): Gondar, Ethiopia (Bailey, 1927).

1 (12823): Mambawanga Hill, Belgian Congo (Heller, 1925).

2 (12836, 12841): Ruchuru, Belgian Congo (Heller, 1925).

Midbody scale-rows 23-25; ventrals 212-234; anal entire; subcaudals 51-67; labials 6-7, third and fourth entering the orbit, or 8, third, fourth, and fifth in No. 12841 and on right side of No. 9913. Largest specimen measures 728 (628+100) mm.

COLUBRIDAE (BOIGINAE)

Boiga pulverulenta (Fischer).

Dipsas pulverulenta Fischer, Abh. Naturw. Ver. Hamburg, 3, p. 81, pl. iii, fig. 1, 1856—Edina, Grand Bassa County, Liberia.

Dipsadomorphus pulverulentus Boulenger, Cat. Snakes Brit. Mus., 3, p. 68, 1896.

2 (4017-8): Ja River, Cameroon (Bates).

Midbody scale-rows 19; ventrals 248-250; anal entire; subcaudals 106-110; labials 8, third, fourth, and fifth entering the orbit. Larger snake measures 1,001 (797+204) mm.

Dipsadoboa unicolor Günther.

Dipsadoboa unicolor Günther, Cat. Snakes Brit. Mus., p. 183, 1858—West Africa; Boulenger, Cat. Snakes Brit. Mus., 3, p. 81, 1896.

1 (4013): Efulen, Cameroon (Bates).

1 (4014): Ja River, Cameroon (Bates).

Midbody scale-rows 17; ventrals 192-194; anal entire; subcaudals entire 83 and ?; labials 8, third, fourth, and fifth, or fourth and fifth entering the orbit. Larger specimen measures 541 (424+117) mm.

Crotaphopeltis hotamboeia hotamboeia (Laurenti).

Coronella hotamboeia Laurenti, Syn. Rept., p. 85, 1768—India orientali, i.e. Africa.

Leptodira hotamboeia Boulenger, Cat. Snakes Brit. Mus., 3, p. 89, 1896; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 406, 1910.

Crotaphopeltis hotamboeia hotamboeia Barbour and Loveridge, Mem. Mus. Comp. Zool., 50, p. 125, 1928.

1 (2259): Mount Kenya, Kenya Colony (Akeley, 1906).

1 (2264): Athi River, Kenya Colony (Akeley, 1906).

1 (2267): Lake Elmenteita, Kenya Colony (Akeley, 1906).

1 (4036): Irumu, Belgian Congo (Ruwenzori Expedition, 1906).

2 (4037-8): Harar, Ethiopia (Kristensen).

2 (12878, 12896): Katobwe, Belgian Congo (Zimmer, 1926).

Midbody scale-rows 19-21; ventrals 161-178; anal entire; subcaudals 36-47; labials 8-9, third, fourth, and fifth, or fourth and fifth, or fourth, fifth, and sixth entering the orbit; preocular 1, not in contact with the frontal; temporals 1+2; on right side of No. 4037, 1+1+2. Largest specimen measures 613 (528+85) mm.

Amplorhinus nototaenia (Günther).

Coronella nototaenia Günther, Proc. Zool. Soc. Lond., p. 309, pl. xxvi, fig. 1, 1864—Rios de Sena, Zambesi.

Amplorhinus nototaenia Boulenger, Cat. Snakes Brit. Mus., 3, p. 125, 1896.

1 (12251): Lake Manka, Tanganyika Territory (Zimmer, 1927).

Midbody scale-rows 17; ventrals 177; anal divided; subcaudals 87; labials 8, fourth and fifth entering the orbit; temporals 2+3. Length of head and body 312 mm., tail mutilated.

Malpolon monspessulanus monspessulanus (Hermann).

Coluber monspessulanus Hermann, Obs. Zool., 1, p. 283, 1804—Monspelio, i.e. Montpellier, France.

Coelopeltis monspessulanus Boulenger, Cat. Snakes Brit. Mus., 3, p. 141, 1896.

1 (11995): Atlas Mountains, Morocco (Riggenbach).

Midbody scale-rows 19; ventrals 176; anal divided; subcaudals 87+; labials 8, fourth and fifth entering the orbit; loreals 2; frontal very narrow. Length of head and body 855 mm., tail tip missing.

Trimerorhinus tritaeniatus multisquamis Loveridge.

Trimerorhinus tritaeniatus Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 405, 1910.

Trimerorhinus tritaeniatus multisquamis Loveridge, Proc. Biol. Soc. Wash., 45, p. 84, 1932—Nairobi, Kenya Colony.

1 (2258): Naivasha, Kenya Colony (Akeley, 1906).

1 (2262): Athi River, Kenya Colony (Akeley, 1906).

1 (2271): Voi, Kenya Colony (Akeley, 1906).

2 (2393): Molo, Kenya Colony (Akeley, 1906).

1 (12513): Allata, Ethiopia (Osgood, 1927).

1 (12525): Webi Shebeli, Ethiopia (Osgood, 1927).

All the above series are paratypes.

Midbody scale-rows 17; ventrals 167–183; anal divided; subcaudals 54–63; labials 8, fourth and fifth entering the orbit except in the Voi snake where there are 9 with fifth and sixth entering, and the right side of a Molo snake where there are 9 with fourth, fifth, and sixth entering the orbit. The Allata snake is the largest example of this race which I have ever seen, surpassing by over 150 mm. the biggest in a series of thirty-five of the typical race which I

collected in 1930; it measures 1,159+ (995+164+tip of tail which is missing) mm.

The data on which I based this race was as follows:

T. t. tritaeniatus Günther.

	Ventrals	Caudals
13 (type and specimens <i>b</i> to <i>m</i> of Boulenger).....	149-163	53-65
5 (types of <i>variabilis</i> and Zomba specimen).....	155-159	52-60
(The ventral count given by Boulenger is incorrect)		
35 (collected in southern Tanganyika, 1930).....	145-162	51-60
2 (from northern Rhodesia and Transvaal, in M.C.Z.).....	150-162	62
Range.....	145-163	51-65

Subsequently Mr. H. W. Parker kindly sent me the ventral counts of ten other snakes from Nyasaland, as well as northern and southern Rhodesia; these ranged from 153 to 161.

Three other specimens from Mossamedes, and Lofoi, Katanga, respectively, have 162, 167, and 170 ventrals which would place them in the *multisquamis* group so well defined east of the Great Lakes.

Nine others from Kenya Colony and Ethiopia bear out my conclusions by having a ventral count ranging from 163 to 181.

T. t. multisquamis Loveridge.

	Ventrals	Caudals
3 (specimens <i>n</i> , <i>o</i> , and <i>p</i> of Boulenger).....	165-170	63-66
8 (from Kenya Colony in Nairobi Museum).....	170-181	57-56
2 (from Kenya Colony in Mus. Comp. Zool.).....	167-178	57-59
1 (from Arusha, Tanganyika, in Mus. Comp. Zool.).....	174	61
22 (from Kenya Colony in U. S. National Museum).....	163-178	54-63
7 (from Kenya and Ethiopia in Field Museum).....	162-183	54-63
Range.....	162-183	54-66

Rhamphiophis rostratus Peters.

Rhamphiophis rostratus Peters, Monatsb. Akad. Wiss. Berlin, p. 624, 1854—Tete; Mesuril; and Quitangonha, Mozambique.

Rhamphiophis oxyrhynchus Boulenger (part, not of Reinhardt), Cat. Snakes Brit. Mus., 3, p. 146, 1896; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 405, 1910.

1 (16143): Voi, Kenya Colony (Akeley, 1906).

Midbody scale-rows 17; ventrals 171; anal divided; subcaudals 115; labials 8, fourth and fifth entering the orbit; preoculars not in contact with the frontal; posterior chin-shields longer than the anterior. Total length 897 (611+286) mm.

The name *oxyrhynchus* Reinhardt is now restricted to the West African species.

Dromophis lineatus (Duméril and Bibron).

Dryophylax lineatus Duméril and Bibron, Erpét. Gén., 7, p. 1124, 1854—White Nile, Africa.

Dromophis lineatus Boulenger, Cat. Snakes Brit. Mus., 3, p. 149, 1896.

1 (12876): Katobwe, Belgian Congo (Zimmer, 1926).

Midbody scale-rows 17; ventrals 149; anal divided; subcaudals ?; labials 8, fourth and fifth entering the orbit; preocular 1; postocular 2; temporals 1+1+2 (right), 1+1+3 (left). Length of head and body 680 mm., tail mutilated.

Psammophis subtaeniatus Peters.

Psammophis sibilans var. *subtaeniata* Peters, Reise nach Mossamb., 3, p. 121, 1882—Boror and inland from Tete, Mozambique.

Psammophis subtaeniatus Boulenger, Cat. Snakes Brit. Mus., 3, p. 160, 1896.

Psammophis sibilans Meek (not of Linnaeus), Field Mus. Nat. Hist., Zool. Ser., 7, p. 405, 1910.

1 (2250): Voi, Kenya Colony (Akeley, 1906).

Midbody scale-rows 17; ventrals 157; anal divided; subcaudals ?; labials 8, fourth and fifth entering the orbit; preocular 1; postoculars 2; temporals 2+2. Length of head and body 542 mm., tail mutilated.

Psammophis sibilans (Linnaeus).

Coluber sibilans Linnaeus (part), Syst. Nat., 1, p. 222, 1758—"Asia."

Psammophis sibilans Boulenger, Cat. Snakes Brit. Mus., 3, p. 161.

1 (12976): Kabengere, Belgian Congo (Zimmer, 1926).

1 (12990): Bukama, Belgian Congo (Zimmer, 1926).

7 (15354-60): Cuma, Angola (Hambly, 1929).

Midbody scale-rows 17; ventrals 168-178; anal divided; subcaudals 89-91 but in seven other specimens the tail is mutilated; labials 8, fourth and fifth entering the orbit. Longest perfect specimen measures 1,114 (809+305) mm.

Psammophis furcatus Peters.

Psammophis furcatus Peters, Monatsb. Akad. Wiss. Berlin, p. 236, 1867—Otjimbingue, Southwest Protectorate; Boulenger, Cat. Snakes Brit. Mus., 3, p. 164, 1896.

Psammophis leightoni Boulenger, Proc. Zool. Soc. Lond., p. 126, pl. xii, 1902—Erste River Station, near Cape Town, Cape Colony.

3 (16041-3): Kleinzee, Cape Province (Wecke, 1931).

Midbody scale-rows 17; ventrals 168-169; anal divided; subcaudals 88-109; labials 8, fourth and fifth entering the orbit; pre-

ocular 1, in contact with the frontal. Largest specimen measures 833 (567+266) mm.

Psammophis biseriatus Peters.

Psammophis biseriatus Peters, Sitzber. Ges. naturf. Freunde Berlin, p. 83, 1881—Taita, Kenya Colony; Boulenger, Cat. Snakes Brit. Mus., 3, p. 168, 1896.

Psammophis sibilans Meek (not of Linnaeus), Field Mus., Zool. Ser., 1, p. 179, 1897.

1 (372): Sheik, Golis Mountains, British Somaliland (Akeley, 1896).

2 (12243, 12250): Lake Manka, Tanganyika Territory (Zimmer, 1926).

Midbody scale-rows 15; ventrals 144–148; anal divided; subcaudals 98–117; labials 9, fourth, fifth, and sixth, or fifth and sixth entering the orbit; temporals 2+3 and 2+2. Largest specimen measures 669 (442+227) mm.

Psammophis crucifer (Daudin).

Coluber crucifer Daudin, Hist. Rept., 7, p. 189, 1803—"Indes orientales."

Psammophis crucifer Boulenger, Cat. Snakes Brit. Mus., 3, p. 169, 1896.

1 (15549): Lady Frere, Cape Province (Romer, 1931).

1 (16035): Kleinsee, Cape Province (Wecke, 1931).

Midbody scale-rows 15; ventrals 140–156; anal divided; subcaudals 66–73; labials 7–8, third and fourth, or fourth and fifth entering the orbit; preocular not in contact with the frontal. Larger specimen measures 475 (360+115) mm.

Macroprotodon cucullatus (Geoffroy).

Coluber cucullatus Geoffroy, Descr. de l'Égypte, Rept., pp. 148 and 151, pl. viii, fig. 3, 1827—Atlas Mountains.

Macroprotodon cucullatus Boulenger, Cat. Snakes Brit. Mus., 3, p. 175, 1896.

2 (4043–4): Atlas Mountains, Morocco (Riggenbach).

Midbody scale-rows 23; ventrals 163–178; anal divided; subcaudals 43–46; labials 8, fourth and fifth entering the orbit. Larger specimen measures 335 (286+49) mm.

Thelotornis kirtlandii (Hallowell).

Leptophis kirtlandii Hallowell, Proc. Acad. Nat. Sci. Phila., p. 62, 1844—Liberia.

Thelotornis kirtlandii Boulenger, Cat. Snakes Brit. Mus., 3, p. 185, 1896.

1 (4019): Benito River, Spanish Guinea (Bates).

1 (4020): Ja River, Cameroon (Bates).

1 (12288): Uleia, Tanganyika Territory (Zimmer, 1926).

1 (15462): Caconda, Angola (Hambly, 1909).

Midbody scale-rows 19; ventrals 156–176; anal divided; subcaudals 141–166; labials 8–9, fourth and fifth entering the orbit. Largest specimen measures 1,470 (935+535) mm.

Dispholidus typus (Smith).

Bucephalus typus Smith, Zool. Journ., 4, p. 441, 1829—Old Latakoo, South Africa.

Dispholidus typus Boulenger, Cat. Snakes Brit. Mus., 3, p. 187, 1896.

2 (15465–6): Caconda, Angola (Hambly, 1909).

Midbody scale-rows 19; ventrals 181–191; anal divided; subcaudals 101–104; labials 7, third and fourth entering the orbit. Larger specimen measures 1,172 (885+287) mm.

Miodon gabonensis (Duméril).

Elapomorphus gabonensis Duméril, Rev. Mag. Zool., (2), 7, p. 468, 1856—Gaboon, West Africa.

Miodon gabonensis Boulenger, Cat. Snakes Brit. Mus., 3, p. 252, 1896.

1 (12825): Mambawanga Hill, Belgian Congo (Heller, 1925).

Midbody scale-rows 15; ventrals 217; anal divided; subcaudals 24; labials 7, third and fourth entering the orbit; fifth labial forming a slight suture with the parietal as in *Calamelaps*; nasal completely divided; internasal equal to, or a trifle longer than, the prefrontals. Total length 661 (617+44) mm.

This male is uniformly black above and below, an almost exact counterpart of a female which I took at Iloilo, Rungwe district, near Lake Nyasa in 1930; the latter has two more ventrals and three more subcaudals.

Elapops modestus Günther.

Elapops modestus Günther, Ann. Mag. Nat. Hist., (3), 4, p. 161, pl. iv, fig. C, 1859—West Africa; Boulenger, Cat. Snakes Brit. Mus., 3, p. 262, 1896.

1 (4024): Ja River, Cameroon (Bates).

1 (4025): Bitye, Cameroon (Bates).

Midbody scale-rows 15; ventrals 145–150; anal entire; subcaudals 38–45; labials 7, third and fourth entering the orbit. Larger specimen measures 409 (335+74) mm.

COLUBRIDAE (ELAPINAE)

Elapsoidea güntherii Bocage.

Elapsoidea güntherii Bocage, Journ. Sci. Lisboa, 1, p. 70, pl. i, fig. 3, 1866—Cabinda, Angola and Bissao, Portuguese Guinea.

Elapechis guentheri Boulenger, Cat. Snakes Brit. Mus., 3, p. 349, 1896; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 405, 1910.

1 (2255): Kijabe, Kenya Colony (Akeley, 1905-7).

1 (15467): Caconda, Angola (Hambly, 1909).

Midbody scale-rows 13; ventrals 138-158; anal entire; subcaudals 13-24; labials 7, third and fourth entering the orbit. Larger specimen measures 217 (195+22) mm.

Undoubtedly east and central African specimens average a higher ventral count than some Angolan snakes. In fifty east and central African records the ventrals range from 153 to 163. Two Angolan snakes available are 138 and 143 but the types of *güntherii* had 153 and 155, while its synonym *semiannulata* Bocage had 143 and a second specimen recorded later by Bocage had 145. Whether a central and east African race, for which the name *nigra* Günther (Zanzibar) would be available, can be established depends on the accumulation of further data from Angolan material.

Naja melanoleuca Hallowell.

Naja haie var. *melanoleuca* Hallowell, Proc. Acad. Nat. Sci. Phila., p. 61, 1857—Gaboon, West Africa.

Naja melanoleuca Boulenger, Cat. Snakes Brit. Mus., 3, p. 376, 1896.

1 (12838): Ruchuru, Belgian Congo (Heller, 1925).

Midbody scale-rows 19; ventrals 206; anal entire; subcaudals 59; labials 7, third and fourth entering the orbit. Total length 504 (425+79) mm.

Naja nigricollis nigricollis Reinhardt.

Naja nigricollis Reinhardt, Dansk. Vidensk. Selsk. Skrift., 10, p. 269, pl. iii, figs. 5 and 7, 1843—Guinea, West Africa.

Naja nigricollis Boulenger, Cat. Snakes Brit. Mus., 3, p. 378, 1896; Meek, Field Mus., Zool. Ser., 1, p. 179, 1897.

1 (12306): Uleia, Tanganyika Territory (Zimmer, 1927).

1 (12873): Katobwe, Belgian Congo (Zimmer, 1926).

1 (12906): Kabengere, Belgian Congo (Zimmer, 1926).

Midbody scale-rows 19-21; ventrals 177-181; anal entire; subcaudals 54-62; labials 6, third entering the orbit. Largest specimen measures 1,395 (1,138+257) mm.

Naja goldii Boulenger.

Naja goldii Boulenger, Ann. Mag. Nat. Hist., (6), 16, p. 34, 1895—Asaba, Nigeria; Cat. Snakes Brit. Mus., 3, p. 387, pl. xx, fig. 2, 1896.

1 (6977): Irumu, Belgian Congo (Heller, 1924).

Midbody scale-rows 15; ventrals 192; anal entire; subcaudals?; labials 7, third and fourth entering the orbit. Head and body measure 2,130 mm., tail mutilated.

Elaps lacteus (Linnaeus).

Coluber lacteus Linnaeus, Syst. Nat., 1, p. 220, 1758—"Indiis."

Homorelaps lacteus Boulenger, Cat. Snakes Brit. Mus., 3, p. 409, 1896.

1 (16037): Kleinsee, Cape Province (Wecke, 1931).

Midbody scale-rows 15; ventrals 220; anal divided; subcaudals 36; labials 6, third and fourth entering the orbit. Total length 328 (294+34) mm.

Despite the high number of ventral scutes (*lacteus* 160–215) this snake is undoubtedly *lacteus* and not *dorsalis* (219–244).

Dendraspis jamesoni kaimosae Loveridge.

Dendraspis jamesoni kaimosae Loveridge, Proc. Biol. Soc. Wash., 49, p. 64, 1936—Kaimosi, Kakamega District, Kenya Colony.

1 (12822): Mambawanga Hill, Belgian Congo (Heller, 1925).

2 (12839–40): Ruchuru, Belgian Congo (Heller, 1925).

Midbody scale-rows 15; ventrals 215–217; anal divided; subcaudals 95–109; labials 7–8, the third and fourth, or fourth only, or fifth only, entering the orbit. Largest specimen measures 1,892 (1,400+492) mm. but is a skin with head and tail attached.

No. 12840 is an intermediate between the eastern and western races of *jamesoni* of which the other two specimens are paratypes.

Dendraspis angusticeps (Smith).

Naja angusticeps Smith, Illus. Zool. S. Africa, 3, pl. lxx, 1849—Natal and the country eastward towards Delagoa Bay.

Dendraspis angusticeps Boulenger, Cat. Snakes Brit. Mus., 3, p. 437, 1896; Loveridge, Bull. Mus. Comp. Zool., 74, p. 273, 1933.

1 (12738): Near Lake Tana, Ethiopia (Fuertes, 1927).

Midbody scale-rows 23; ventrals 254; anal divided; subcaudals 113; labials 8, fourth below the eye; the large lower temporal reaches the lip on the left side but on the right is separated by horizontal division which forms a labial; the posterior upper temporal is vertically divided so that there are three temporals along the outer border

of the parietal on either side. Total length of skin with head and tail attached 2,420 (1,900+520) mm.

No importance need be attached to these variations as mambas are particularly liable to individual aberrations as can be seen when large series are obtained from one locality. It appears probable that *antinorii* which was described from Anseba, Ethiopia, should be, like *sjoestedti* Lönnberg and *transvallensis* Gough, relegated to the synonymy of *angusticeps* Smith.

Dr. W. H. Osgood has kindly furnished me with the following quotation from the diary of the late Mr. L. A. Fuertes as it relates to the collecting of the specimen listed above: "A little later on, our guide, just ahead of me, stopped short and sucked in his breath, and pointed, bung-eyed, at the trail-side, and there, gliding slowly and silently along, was the first big snake of our trip, a gray-green smooth-scaled one some seven feet long and $1\frac{1}{2}$ inches to $1\frac{3}{4}$ inches in diameter. I auxed¹ it in the neck, stopping but not killing it. We accomplished that, however, without mutilating it, skinned it, with head entire, for the formalin box—a good catch. It had two needle sharp teeth, one of which pricked me a little; just enough to show that you can't be too careful, if careful enough! The men were all spellbound and got a grand shudder; they are scared pink of snakes, but with better reason than at home, for here a large proportion of the species are venomous, and many very deadly."

Mr. Fuertes was under a misapprehension as to the large proportion of venomous species in Ethiopia, not more than one in six being dangerous to man; it is highly probable that the incidence of individuals of the venomous species is no higher than in other parts of Africa.

It was undoubtedly a Green Mamba to which Dr. D. G. Elliot referred in his introductory note to the "List of Fishes and Reptiles obtained by the Field Columbian Museum East African Expedition to Somaliland in 1896" (1897, Field Columbian Mus., Zool. Ser., 1, p. 163) when he wrote:

"snakes were only occasionally seen. Perhaps, as we did not hunt for them, may account for their apparent rarity. Many are poisonous, and I was surprised to find a green tree snake, nine feet long, that was killed by Mr. Dodson near our camp at Bohobgashan, was furnished with long fangs and was evidently a dangerous customer. The shot injured the skin so much that it was not brought back with us."

¹ Shot with auxiliary collecting gun.

VIPERIDAE

Causus rhombeatus (Lichtenstein).

Sepedon rhombeatus Lichtenstein, Verz. Doubl. Mus. Berlin, p. 106, 1823—no locality.

Causus rhombeatus Boulenger, Cat. Snakes Brit. Mus., 3, p. 467, 1896.

Causus resimus Meek (not of Peters), Field Mus. Nat. Hist., Zool. Ser., 7, p. 405, 1910.

1 (2268): Nairobi, Kenya Colony (Akeley, 1905-7).

1 (4004): Benguela, Angola (Ansorge).

5 (12902-3, 12968-9, 12991): Kabengere, Belgian Congo (Zimmer, 1926).

Midbody scale-rows 17-18; ventrals 140-155; anal entire; subcaudals 22-33; labials 6. Largest specimen measures 674 (607+67) mm. The latter is the Nairobi specimen most unfortunately referred to *resimus* by Meek who gave its tail length as 17 instead of 67 mm., its midbody scale-rows as 17 instead of 18, and its ventral count as 161 instead of 155.

Causus resimus (Peters).

Heterophis resimus Peters, Monatsb. Akad. Wiss. Berlin, p. 277, pl., fig. 4, 1862—Gebel Ghule, Senaar, Sudan.

Causus resimus Boulenger, Cat. Snakes Brit. Mus., 3, p. 468, 1896.

1 (4003): Angola (Ansorge).

Midbody scale-rows 21; ventrals 142; anal entire; subcaudals 20; labials 7. Total length 496 (450+46) mm.

Causus lichtensteinii (Jan).

Aspidelaps lichtensteinii Jan, Rev. Mag. Zool., p. 511, 1859—Gold Coast.

Causus lichtensteinii Boulenger, Cat. Snakes Brit. Mus., 3, p. 470, 1896.

1 (6974): Irumu-Beni Road, Belgian Congo (Heller, 1924).

Midbody scale-rows 15; ventrals 148; anal entire; subcaudals 17; labials 6. Total length 480 (442+38) mm.

Vipera hindii Boulenger.

Vipera hindii Boulenger, Ann. Mag. Nat. Hist., (8), 5, p. 513, 1910—Aberdare Mountains, Kenya Colony; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 405, 1910.

2 (2252-3): Aberdare Mountains, Kenya Colony (Akeley, 1905-7).

Midbody scale-rows 27; ventrals male 132, female 129; anal entire; caudals male 33, female 26; labials 8. Total length: 233

(202+31) mm., female 290 (258+32) mm. These are the two specimens mentioned by Meek though the measurements and scale counts given here are so totally at variance with his figures.

Bitis arietans (Merrem).

Vipera (Echidna) arietans Merrem, Tent. Syst. Amph., p. 152, 1820—Cape of Good Hope.

Bitis arietans Boulenger, Cat. Snakes Brit. Mus., 3, p. 493, 1896; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 405, 1910.

1 (2269): Nairobi, Kenya Colony (Akeley, 1905-7).

3 (15351-3): Cuma, Angola (Hambly, 1929).

Midbody scale-rows 29-35; ventrals 129-137; anal entire; subcaudals 14-28; labials 12-15. Largest specimen measures 839 (780+59) mm.

Bitis gabonica (Duméril and Bibron).

Echidna gabonica Duméril and Bibron, Erpét. Gén., 7, p. 1428, pl. lxxxv, 1854—Gaboon, West Africa.

Bitis gabonica Boulenger, Cat. Snakes Brit. Mus., 3, p. 499, 1896.

2 (12818-9): Mambawanga Hill, Belgian Congo (Heller, 1925).

Midbody scale-rows 39-41; ventrals 133; anal entire; subcaudals 19; labials 15. Larger specimen measures 665 (622+43) mm. but is a skin with head and tail attached.

Bitis nasicornis (Shaw).

Coluber nasicornis Shaw, Nat. Miscell., 3, pl. xciv, 1802—interior of Africa.

Bitis nasicornis Boulenger, Cat. Snakes Brit. Mus., 3, p. 500, 1896.

1 (3996): Bitye, Cameroon (Bates).

1 (12820): Mambawanga Hill, Belgian Congo (Heller, 1925).

Midbody scale-rows 35-41; ventrals 123-134; anal entire; subcaudals 20-28; labials 16-18. Larger specimen measures 967 (882+85) mm.

Bitis cornuta (Daudin).

Vipera cornuta Daudin, Hist. Rept., 6, p. 188, 1803—Cape of Good Hope.

Bitis cornuta Boulenger, Cat. Snakes Brit. Mus., 3, p. 497, 1896.

2 (16039-40): Kleinsee, Cape Province (Wecke, 1931).

Midbody scale-rows 29; ventrals 137-143; anal single; caudals 26-34; labials 14. Larger specimen measures 374 (327+47) mm.

Bitis caudalis (Smith).

Vipera caudalis Smith, Illus. Zool. S. Africa, 3, pl. vii, 1849—sandy districts north of the Cape Colony.

Bitis caudalis Boulenger, Cat. Snakes Brit. Mus., 3, p. 498, 1896.

1 (16038): Kleinzee, Cape Province (Wecke, 1931).

Midbody scale-rows 23; ventrals 109; anal entire; subcaudals 21; labials 10. Total length 224 (200+24) mm.

Echis carinatus (Schneider).

Pseudoboa carinata Schneider, Hist. Amph., 2, p. 285, 1801—no locality.

Echis carinatus Boulenger, Cat. Snakes Brit. Mus., 3, p. 505, 1896; Meek, Field Mus., Zool. Ser., 1, p. 179, 1897.

1 (376): Hullieh, Somaliland Protectorate (Akeley, 1896).

Midbody scale-rows 28; ventrals?; anal entire; subcaudals 37; labials 10. Length?

This specimen is identified by locality rather than on taxonomic grounds for the scales on its snout are smooth while those on the vertex might well be considered as obtusely keeled; moreover, it has three series of scales between the eye and the upper labials, a condition usual in *coloratus*, rare in *carinatus*.

Atheris squamigera (Hallowell).

Echis squamigera Hallowell, Proc. Acad. Nat. Sci. Phila., p. 193, 1854—near the River Gaboon.

Atheris squamiger Boulenger, Cat. Snakes Brit. Mus., 3, p. 509, 1896.

1 (12821): Mambawanga Hill, Belgian Congo (Heller, 1925).

1 (12837): Ruchuru, Belgian Congo (Heller, 1925).

Midbody scale-rows 21; ventrals 159–162; anal entire; subcaudals 49–54; labials 10. Larger specimen measures 543 (460+83) mm.

Atheris nitschei Tornier.

Atheris nitschei Tornier, Zool. Jahrb. Syst., 15, p. 589, fig., 1902—Mpororo Swamp, Belgian Ruanda-Urundi.

21 (8978, 8983–7, 9890–9904): Lake Bunyoni, Uganda (Heller, 1925).

9 embryos (9905): Lake Bunyoni, Kigezi District, Uganda (Heller, 1925).

Midbody scale-rows 25–29, average 27; ventrals 141–156; anal entire; subcaudals 37–51; labials 9–11. Largest male measures 611 (523+88) mm., largest female 651 (567+84) mm.

This is probably the finest series of this interesting tree-viper in existence though nine of the snakes are embryos just ready for parturition and nine others (No. 9905) are very small embryos; these latter were not utilized in making scale counts. Presumably these two batches of embryos represent the progeny of two of the female adults. It is interesting to observe that the tips of the tails in these young vipers are ivory-white and that three of the embryos have 9-9 labials, four have 10-10, one 11-10, while only one possesses 11-11, tending to show that the higher number may be a development of later life. The sexes can be determined apparently by the subcaudal count, those with over 40 pairs of subcaudals being males, those with less than 40, females; none possessed 40.

Atractaspis bibronii Smith.

Atractaspis bibronii Smith, Illus. Zool. S. Africa, 3, pl. lxxi, 1849—eastern districts of Cape Colony; Boulenger, Cat. Snakes Brit. Mus., 3, p. 515, 1896.

1 (12879): Katobwe, Belgian Congo (Zimmer, 1926).

Midbody scale-rows 23; ventrals 235; anal entire; subcaudals 22; labials 5, third and fourth entering the orbit; third lower labial largest. Total length 572 (542+30) mm.

Atractaspis microlepidota Günther.

Atractaspis microlepidota Günther, Ann. Mag. Nat. Hist., (3), 18, p. 29, pl. vii, fig. 3, 1866—type locality unknown "probably West Africa" errore; Boulenger, Cat. Snakes Brit. Mus., 3, p. 517, 1896; Meek, Field Mus., Zool. Ser., 1, p. 179, 1897; Loveridge, Bull. Mus. Comp. Zool., 74, p. 281, 1933.

1 (375): Harsi Barri, Ethiopia (Akeley, 1896).

Midbody scale-rows 29; ventrals 243; anal entire; subcaudals 32; labials 6, only the fourth entering the orbit; fourth lower labial largest. Total length 663 (610+53) mm. In the last citation given above reasons are advanced for placing certain species in the synonymy of *microlepidota*.

GEKKONIDAE

Hemitheconyx caudicinctus (Duméril).

Stenodactylus caudicinctus Duméril, Rev. Mag. Zool., p. 479, pl. xiii, 1851—Senegal.

Psilodactylus caudicinctus Boulenger, Cat. Liz. Brit. Mus., 1, p. 230, 1885.

Hemitheconyx caudicinctus Stejneger, North Amer. Fauna, No. 7, p. 163 (footnote), 1893.

1 (11300): 15 miles south of Zungeru, Nigeria (Clark, 1930).

Formerly considered by Boulenger as one of the Eublepharidae, but since that family is no longer considered distinct from the Gekkonidae *Hemitheconyx* must now be placed near *Stenodactylus*. Mr. H. W. Parker has recently described a new species from Somaliland. The Zungeru specimen recorded above agrees closely with two others in the Museum of Comparative Zoology with which it has been compared. Total length 139 (99+40) mm.

***Stenodactylus sthenodactylus sthenodactylus* (Lichtenstein).**

A[scalabotes] sthenodactylus Lichtenstein, Verz. Doubl. Berlin Mus., p. 102, 1823—Egypt and Nubia.

Stenodactylus guttatus Boulenger, Cat. Liz. Brit. Mus., 1, p. 41, 1885.

2 (586): Giza, Egypt (British Museum).

The name *sthenodactylus* of Lichtenstein (1823) antedates *elegans* Fitzinger (1826), *guttatus* Cuvier (1829), and *mauritanicus* Guichenot (1850). The latter name is applicable in a subspecific sense to the geckos from Algeria and Morocco for these possess a less elevated nasal ring than have geckos from Tunis, Tripoli, Egypt, Sudan, and Syria in the Museum of Comparative Zoology. *S. mauritanicus* was described from Aran, Algeria, as was also *S. m. huouxi* Doumergue (1899) which does not appear to be recognizable as a valid race. Both these Giza specimens differ from the description in that the rostral enters the nostril. Two femoral pores are distinguishable in one male, absent in the other. Length of the larger specimen from snout to anus 45 mm., tail missing.

***Palmatogecko rangei* Andersson.**

Palmatogecko rangei Andersson, Jahrb. Nass. Ver. Wiesbaden, 61, p. 299, 1908—Luderitz Bay, Southwest Protectorate.

3 (14807-8, 15454): Namib Desert, Southwest Protectorate (Gaerdes, 1928).

The larger male measures 123 (64+59) mm., the female 124 (63+61) mm.

***Gymnodactylus trachyblepharus* Boettger.**

Gymnodactylus trachyblepharus Boettger, Abh. Senck. Natur. Ges., 9, p. 138, pl. i, fig. 3, 1874—Djebel Haded, near Mogador, Morocco; Boulenger, Cat. Liz. Brit. Mus., 1, p. 34, 1885.

2 (3894-5): Atlas Mountains, Morocco (Riggenbach).

Eight, not seven, upper labials present. Larger specimen measures 105 (45+60) mm.

Cnemaspis dickersoni (Schmidt).

Gonatodes dickersoni Schmidt, Bull. Amer. Mus. Nat. Hist., 39, p. 436, text fig. 6, 1919—Medje, Belgian Congo.

Paragonatodes dickersoni Noble, Amer. Mus. Nov., No. 4, p. 14, 1921.

Cnemaspis dickersoni Loveridge, Proc. Zool. Soc. Lond., p. 822, 1936 (1935). 5 (12750-4): Beni, Belgian Congo (Heller, 1925).

Upper labials 6; lower labials 5-6; transverse rows of ventrals 20-27; enlarged lamellae beneath median toe 4; preanal pores 7-8. Largest specimen, a male, measures 72 (34+38) mm.

I took the opportunity of comparing the above examples of a very distinct species with the two other members of the genus which are in the Museum of Comparative Zoology. As pointed out by Schmidt, the more slender habitus of *dickersoni* immediately distinguishes it from both its allies. Unfortunately our cotype of *quattuorseriatus* Sternfeld lacks a tail but a second specimen recently collected at Mpwapwa, Tanganyika Territory, shows that the two species cannot be distinguished on the basis of four rows of caudal tubercles which may be present or absent in *quattuorseriatus*. The enlarged ventral scales, as compared with the dorsals, is common to all three species. The other three diagnostic characters mentioned by Schmidt hold good. *C. africanus*, of which a series of topotypes are available, is a much larger gecko.

Hemidactylus mabouia (Moreau de Jonnés).

Gecko mabouia Moreau de Jonnés, Bull. Soc. Philom. Paris, p. 138, 1818—Antilles and adjacent mainland.

Hemidactylus mabouia Boulenger, Cat. Liz. Brit. Mus., 1, p. 122, 1885; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 406, 1910.

Hemidactylus brookii Meek (not of Gray), Field Mus. Nat. Hist., Zool. Ser., 7, p. 406, 1910—on steamer in Red Sea.

3 (2318, 2360, 2382): Voi, Kenya Colony (Akeley, 1906).

1 (2392): On steamer in Red Sea (Akeley, 1906).

1 (12279): Mnazi, Tanganyika Territory (Zimmer, 1926).

5 (12294-8): Uleia, Tanganyika Territory (Zimmer, 1926).

2 (12332, 12340): Ulambo, Tanganyika Territory (Zimmer, 1926).

Dorsal rows of conical tubercles 8-12; lamellae under median digit 7-8; femoral pores 18-24 on each side in the seven males. Largest specimen measures 163 (83+80) mm.

Hemidactylus fasciatus Gray.

Hemidactylus fasciatus Gray, Zool. Misc., p. 58, 1831—type locality unknown; Boulenger, Cat. Liz. Brit. Mus., 1, p. 124, pl. xi, fig. 4, 1885.

1 (3892): Fan Topat, French Congo (Bates).

1 (3893): Efulen, Cameroon (Bates).

Lamellae under median digit 7-8. Larger specimen measures 135 (61+74) mm.

Hemidactylus ituriensis Schmidt.

Hemidactylus ituriensis Schmidt, Bull. Amer. Mus. Nat. Hist., 39, p. 455, pl. xv, fig. 2; pl. xvi; text fig. 7, 1919—Avakubi, Belgian Congo.

1 (12745): Walikale, Belgian Congo (Heller, 1924).

Lamellae under the median digit 9. Length from snout to anus 79 mm., tip of tail missing.

Hemidactylus sinaitus Boulenger.

Hemidactylus sinaitus Boulenger, Cat. Liz. Brit. Mus., 1, p. 126, 1885—Mount Sinai.

3 (587): Durrur, near Suakin, Sudan (British Museum).

All three differ from the original description in that the rostral does enter the nostril. Anderson has, however, reexamined the type and states that it does enter. Upper labials 9-10; lower labials 6-8; lamellae under median digit 5-7; under fourth digit 6-7; under fourth toe 7-10; preanal pores in both males 4. Larger male measures 42 mm. from snout to anus, tail missing.

Hemidactylus brookii Gray.

Hemidactylus brookii Gray, Zool. Erebus and Terror, pl. xv, fig. 2, 1844—Australia and Borneo; Boulenger, Cat. Liz. Brit. Mus., 1, p. 128, 1885.

5 (12777-81): Irumu, Belgian Congo (Heller, 1925).

Dorsal rows of keeled tubercles 14-16; lamellae under first digit 2-4; under median digit 5-6; femoral pores 14-15 except No. 12778 which has 3-3. Largest male measures 106 (65+41) mm.

Lygodactylus picturatus picturatus (Peters).

Hemidactylus picturatus Peters, Monatsb. Akad. Wiss. Berlin, p. 115, 1870—Zanzibar.

Lygodactylus picturatus Boulenger, Cat. Liz. Brit. Mus., 1, p. 161, 1885; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 406, 1910.

5 (2361, 2384, 2386): Voi, Kenya Colony (Akeley, 1906).

12 (12236-40, 12242, 12249, 12257-61): Lake Manka, Tanganyika Territory (Zimmer, 1926).

Upper labials 6-8, average of 34 sides is 6.5; preanal pores in the ten males 8-10, average 9. Largest specimen, a male, measures 78 (39+39) mm.

Lygodactylus picturatus gutturalis (Bocage).

Hemidactylus gutturalis Bocage, Journ. Sci. Lisboa, 4, p. 211, 1873—Bissao, Portuguese Guinea.

Lygodactylus gutturalis Boulenger, Cat. Liz. Brit. Mus., 1, p. 161, 1885.

1 (6988): Bunia, Belgian Congo (Heller, 1924).

4 (12755-8): Beni, Belgian Congo (Heller, 1925).

13 (12881-93): Katobwe, Belgian Congo (Zimmer, 1926).

Upper labials 6-8, average of 36 sides 6.9; preanal pores in the five males 7-9, average 7.6. Largest specimen, a female, measures 74 (38+36) mm.

Tarentola mauritanica mauritanica (Linnaeus).

Lacerta mauritanica Linnaeus, Syst. Nat., 1, p. 202, 1758—Mauritania.

Tarentola mauritanicus Boulenger, Cat. Liz. Brit. Mus., 1, p. 196, 1885.

1 (3890): Mogador, Morocco (Riggenbach).

A typical example, measuring 64 mm. from snout to anus; tail missing.

Tarentola annularis (Geoffroy).

Gecko annularis Geoffroy, Descr. de l'Egypte, Rept., p. 130, pl. v, figs. 6 and 7, 1809—Egypt.

Tarentola annularis Boulenger, Cat. Liz. Brit. Mus., 1, p. 197, 1897.

6 (597): Giza, Egypt (Flower).

Upper labials 9-12, average 10. Largest specimen measures 154 (98+56) mm., the tail apparently regenerated.

Pachydactylus mariquensis Smith.

Pachydactylus mariquensis Smith, Illus. Zool. S. Africa, 3, App. p. 3, 1849—interior of South Africa, towards the tropic of Capricorn; Boulenger, Cat. Liz. Brit. Mus., 1, p. 207, 1885.

1 (15541): Lady Frere, Cape Province (Romer, 1929).

Upper labials 7-8; lower labials 7-8; lamellae under median digit 3. Total length 73 (40+33) mm.

Pachydactylus austeni Hewitt.

Pachydactylus austeni Hewitt, Ann. Natal Mus., 5, p. 68, text fig., pl. iv, figs. 1 and 2, 1923—Port Nolloth, Cape Province.

3 (16013-5): Kleinsee, Cape Province (Wecke, 1931).

As Kleinsee is close to Port Nolloth these geckos may be regarded as almost topotypic. One, however, differs from the types in having

the nasorostrals separated by a single row composed of two granules. Upper labials 9-10; lower labials 7-9; lamellae under median digit 3; under fourth toe 3. Largest specimen measures 73 (42+31) mm.

AGAMIDAE

Agama mutabilis Merrem.

Agama mutabilis Merrem, Tent. Syst. Amph., p. 50, 1820—Egypt; Anderson, Zool. Egypt, 1, p. 94, pl. ix, 1898.

1 (620): Cairo, Egypt (British Museum).

Midbody scale-rows 91; pores 24 but in two rows. This male measures 176 (74+102) mm.

Agama flavimaculata (Rüppell).

Trapelus flavimaculatus Rüppell, Neue Wirbelt. Fauna Abyssinia, 2, p. 12, pl. vi, fig. 1, 1835—near Djetta, Arabia.

Agama leucostigma Boulenger (non Reuss), Cat. Liz. Brit. Mus., 1, p. 346, 1885.

2 (590): Between Suez and Ismailia, Egypt (British Museum).

Midbody scale-rows 69-74; preanal pores 9-9. Larger male measures 165 (69+96) mm.

Agama pallida Reuss.

Agama pallida Reuss, Mus. Senck., 1, p. 38, pl. iii, fig. 3, 1834—no locality; Boulenger, Cat. Liz. Brit. Mus., 1, p. 348, 1885.

3 (602): Cairo, Egypt (Flower).

1 (1849): Suez, Egypt (Flower).

Midbody scale-rows 105-136; preanal pores 23-24 in two rows. Largest male measures 160 (71+89) mm.

Agama hispida brachyura Boulenger.

Agama brachyura Boulenger, Cat. Liz. Brit. Mus., 1, p. 350, pl. xxviii, fig. 1, 1885—Cape of Good Hope.

3 (16016-8): Kleinsee, Cape Province (Wecke, 1931).

Midbody scale-rows 84-92; preanal pores 8-11. Largest male measures 206 (106+100) mm.

Agama hispida aculeata Merrem.

Agama aculeata Merrem, Tent. Syst. Amph., p. 53, 1820—Cape of Good Hope; Boulenger, Cat. Liz. Brit. Mus., 1, p. 351, 1885.

2 (3903-4): Benguela, Angola (Anson).

6 (15382-7): Cuma, Angola (Hambly, 1929).

Midbody scale-rows 83-93; preanal pores 11-15, the higher number in two rows. Largest male measures 234 (92+142) mm.

Agama atra atra Daudin.

Agama atra Daudin, Hist. Nat. Rept., 3, p. 349, 1802—type locality unknown; Boulenger, Cat. Liz. Brit. Mus., 1, p. 352, 1885.

35 (15550): Lady Frere, Cape Province (Romer, 1929).

Midbody scale-rows 102–129, average 116.8; preanal pores of sixteen males 9–13, average 11. Largest female measures 191 (87+104) mm.; a male with this body length has the tail injured. Most of the series are juvenile.

Agama mossambica montana Barbour and Loveridge.

Agama mossambica montana Barbour and Loveridge, Mem. Mus. Comp. Zool., 50, p. 147, 1928—near Bagilo, Uluguru Mountain, Tanganyika Territory.

1 (12290): Mnazi, Tanganyika Territory (Zimmer, 1926).

3 (12292–3, 12302): Uleia, Tanganyika Territory (Zimmer, 1926).

1 (12327): Mitiangu, Tanganyika Territory (Zimmer, 1926).

2 (12333, 12337): Ulambo, Tanganyika Territory (Zimmer, 1926).

The above specimens are not typical of the race *montana* which was based on a series of forty adults. A male from Mnazi and another from Uleia both attain to a greater length than any mountain specimens and are therefore intermediate between *montana* and the much larger coastal form. As much might be inferred from the altitude of the localities from which they come. In this connection the question arises as to the status of *A. cariniventris* Peters (1874, Monatsb. Akad. Wiss. Berlin, p. 159) which was described from the "Zanzibar Coast," a term in use at that time for the mainland opposite Zanzibar Island. As the collector, Hildebrandt, was known to have visited the Taita Hills and other upland areas it may be that *cariniventris* is applicable to such intermediates as are listed above and is not a strict synonym of *mossambica* as thought by Boulenger in 1885. Its author compared it with *colonorum* (= *agama* Linnaeus). The species was not seen by me during three weeks spent on Mount Mbololo in the Taita Hills.

Midbody scale-rows 61–76, average about 64; preanal pores of five males 6–10, average 8.6. Largest male measures 273 (87+186) mm.

Agama agama agama (Linnaeus).

Lacerta agama Linnaeus (part), Syst. Nat., 1, p. 207, 1758—"America."

Agama colonorum Boulenger, Cat. Liz. Brit. Mus., 1, p. 356, 1885.

1 (1589): Gold Coast (Basel Museum).

3 (13130–2): Rhino Camp, Uganda (Zimmer, 1927).

13 (13133–45): Bulukutoni, Uganda (Zimmer, 1927).

Midbody scale-rows 67-77, average 72; upper labials 8-11, average 9; lamellae beneath fourth toe 19-25, average 21; preanal pores of nine males 9-11, average 9. Largest male (Gold Coast) measures 310 (125+185) mm.

The mucros on the dorsal scales of the Gold Coast specimen (which should be typical) are more developed than in any of the Uganda specimens. Andersson (Bihang till K. Svenska Vet.-Akad. Hand., 26, No. 1, p. 11, 1900) has shown that *Lacerta agama* Linnaeus is identifiable and should be known as *Agama agama*, taking precedence over Daudin's well-known name of *A. colonorum*. At my request, Count Gyldenstolpe very kindly counted the midbody scale-rows in one of the Linnaean cotypes of *A. agama* preserved in the Royal Swedish Museum, and found them to number 75. The probability is that it came from the Cameroon or Gaboon region and I suggest that the type locality be restricted to the Cameroon.

It will be noticed that Boulenger (l.c.) gives the number of midbody scale-rows for *A. colonorum* as 60 to 80, an extraordinarily wide range for any species of *agama* in this section. Experience resulting from counting many hundreds of East African members of the genus has shown me that the variation of any one race is generally ten, rarely as many as thirteen, in a given area.

The typical form has usually been considered to have a distribution from Senegal to the western foot of Mount Elgon, Uganda. The following scale counts show, however, that the number decreases from east to west with a falling off west of the Gold Coast sufficiently marked to justify the recognition of a race in that region.

The names *colonorum* Daudin (Africa), *occipitalis* Gray (Africa), *congica* Peters (Chinchoxo), *picticauda* Peters (Adda Foa, Accra; Cameroon) appear to be synonymous with the typical form. For the western race I believe that the name *savatieri* Rochebrune (with Bathurst, Gambia, as restricted type locality) may be used. Mons. Angel informs me that the type is not in the Paris Museum. It is probably lost unless preserved in Senegal. The description accords reasonably well, the figure of the head-shields very closely. The coloring is doubtful. As stated by Boulenger, the work of this author is of the worst. Some recently taken scale counts are given below; they are arranged according to locality, east to west.

A. a. agama (Linnaeus).

13 from Budadiri, east Uganda, range 74-84 with average 79.

13 from Bulukutoni, northwest Uganda, range 67-77, average 72.

- 13 from Belgian Congo localities, range 64–74 with average 68.
 13 from French West Africa, range 62–74 with average 67.
 13 from Cameroon, range 72–84 with average 76.
 1 from Gold Coast, range 70 with average 70.

A. a. savatieri Rochebrune.

- 11 from Liberia range 60–64 with average 62.
 3 from Senegal range 58–64 with average 60.

Agama agama subsp.

- 5 (15076–80): Bisan River, Ethiopia (Albrecht, 1929).

Midbody scale-rows 70–77, average 74; upper labials 9–11, average 10; lamellae beneath fourth toe 19–20; preanal pores of five males 10–13, average 11. Largest male measures 115 mm. from snout to anus, tail damaged.

These five agamas are intermediate in position between *A. a. agama* and *A. a. lionotus*. From the former they differ in the much smoother dorsals which are only very faintly keeled; from *lionotus* they differ in the shorter nuchal crest. It is probable, however, that they should be referred to *lionotus*, the Bisan River being in extreme southern Ethiopia.

Agama agama lionotus Boulenger.

- Agama lionotus* Boulenger, Proc. Zool. Soc. Lond., p. 214, pl. viii, 1896—southeast of Lake Rudolph, Kenya Colony.

- Agama colonorum* Meek (not Daudin), Field Mus. Nat. Hist., Zool. Ser., 7, p. 407, 1910.

20 (2313–7, 2319–20, 2346–8, 2359, 2377, 2387): Voi, Kenya Colony (Akeley, 1906).

- 27 (2321–5, 2334–45): Lukenya, Kenya Colony (Akeley, 1906).

- 3 (8872–4): Tsavo, Kenya Colony (Heller, 1926).

Midbody scale-rows 70–80 except for one Tsavo agama with 67, average 77; upper labials 9–13, average 10.3; lamellae beneath fourth toe 17–25, average 21; preanal pores of 28 males 11–17, average 13. Largest male measures 125 mm. from snout to anus, tail damaged.

Agama agama usambarae Barbour and Loveridge.

- Agama colonorum usambarae* Barbour and Loveridge, Mem. Mus. Comp. Zool., 50, p. 150, pl. ii, fig. 1, 1928—Soni, East Usambara Mountains, Tanganyika Territory.

- 8 (12280–7): Mnazi, Tanganyika Territory (Zimmer, 1926).

Midbody scale-rows 70-78, average 73; upper labials 9-11, average 10.1; lamellae beneath fourth toe 20-21, average 20.6; preanal pores of three males 10-13, average 11. Largest male measures 325 (122+203) mm.

This form is probably only to be distinguished from the foregoing on color grounds. The head of *lionotus* from Mombasa just north of the Usambara Mountains, is gamboge or mustard-yellow above, its throat brick-red; *usambarae*, of which the above series were named paratypes, on the other hand, has the top of the head as well as the throat of a bright crimson-lake hue. As these bright colors fade out on preservation it remains to be seen whether this form can be retained. The genus *Agama* is badly in need of a thorough revision.

***Agama planiceps planiceps* Peters.**

Agama planiceps Peters, Monatsb. Akad. Wiss. Berlin, p. 15, 1862—New Barmen, Hereroland; Boulenger, Cat. Liz. Brit. Mus., 1, p. 358, 1885.

16 (15399-414): Cuma, Angola (Hambly, 1929).

Midbody scale-rows 80-90, except No. 15403 which has 74, average 84; upper labials 9-11, average 10; lamellae beneath fourth toe 21-26, average 23; preanal pores of nine males 12-14 (except for one agama which has a second row, the two giving a total of 24, this supernumerary row is omitted from the average), average 12. Largest male measures 130 mm. from snout to anus, tail damaged.

***Agama planiceps caudospinosa* Meek.**

Agama caudospinosa Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 407, 1910—Lake Elmenteita, Kenya Colony.

2 (2311-2): Lake Elmenteita, Kenya Colony (Akeley, 1906).

3 (2326-7, 6448): Gilgil, Kenya Colony (Akeley, 1906).

Midbody scale-rows 74-83, average 80; upper labials 9-12, average 10.7; lamellae beneath fourth toe 19-20, average 20; preanal pores of four males 9-12, average 10. Largest male measures 112 mm. from snout to anus, tail damaged. No. 2312 is the type.

***Agama atricollis* Smith.**

Agama atricollis Smith, Illus. Zool. S. Africa, 3, App. p. 14, 1849—Natal; Boulenger, Cat. Liz. Brit. Mus., 1, p. 358, 1885; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 408, 1910.

5 (2309-10, 2328-30): Lake Elmenteita, Kenya Colony (Akeley, 1906).

3 (2331-2, 2431): Nairobi, Kenya Colony (Akeley, 1906).

- 3 (6454-6): Gilgil, Kenya Colony (Akeley, 1906).
 2 (6978, 6980): Bunia, Belgian Congo (Heller, 1924).
 2 (8988-9): Bambuni, Belgian Congo (Heller, 1925).
 2 (12309-10): Uleia, Tanganyika Territory (Zimmer, 1926).
 4 (12334, 12338-9, 12341): Ulambo, Tanganyika Territory (Zimmer, 1926).
 2 (12734-5): Gendoa River, Ethiopia (Osgood, 1927).
 14 (12764-7, 12809-17, 12833): Near Beni, Belgian Congo (Heller, 1925).
 11 (15388-98): Cuma, Angola (Hambly, 1929).

Midbody scale-rows 79-114, but whole series not counted; scales on the vertebral region usually irregularly enlarged but in some the median rows tend to form a definite longitudinal vertebral band of enlarged scales. This is especially noticeable in the male from Metemma, Ethiopia (but not in the least in the female from the same locality); it seems as if these two Ethiopian agamas are more or less intermediate between *otricollis* and *annectens*, differing from the latter in possessing ventrals considerably smaller than the enlarged dorsals, also in coloration and in other minor points; in some Angolan specimens the enlarged scales along the vertebral line also tend to form a well differentiated region; ventrals smooth or keeled.

Nostril pierced below the canthus rostralis in 42 specimens, on it in 5; labials 9-13, average 10.9; lamellae beneath the median digit 16-23, average 18.6; lamellae beneath the fourth toe 18-27, average 21.9; preanal pores in 25 males are in two or three rows totaling 13-36, average 20.8. Belly occasionally bears reticulate markings. Largest male measures 280 (142+138) mm.

Agama cyanogaster (Rüppell).

Stellio cyanogaster Rüppell, Neue Wirbelt. Fauna Abyssinia, 2, p. 10, pl. v, 1835—Massaua and the Abyssinian coast (i.e. Massawa, Eritrea).

Agama cyanogaster Boulenger, Cat. Liz. Brit. Mus., 1, p. 358, 1885.

- 2 (3905-6): Harar, Ethiopia (Kristensen).
 2 (12522-3): Lake Shala, Ethiopia (Osgood, 1927).

The following data are based upon the above and a pregnant female from Harar, Ethiopia, in the Museum of Comparative Zoology (No. 8064).

Midbody scale-rows 98-114, average 105; scales on the vertebral region usually irregularly enlarged but in No. 12522 the four median rows form a longitudinal, vertebral band in which the two outermost

rows are larger than the innermost pair but are otherwise more or less uniformly enlarged; ventral scales smooth or feebly keeled.

Nostril pierced below the canthus rostralis in 4 specimens, on it in 1; labials 9–12, average 10.6; lamellae beneath the median digit 17–21, average 18; lamellae beneath the fourth toe 18–22, average 20; preanal pores in two males are in two rows totaling 17–19, average 18. The belly is immaculate in one adult male and in two females; it is reticulated with blue lines like those on the throat in the remaining male and female. One male measures 147 (62+85) mm.; the largest female (M.C.Z.) measures 151 (70+81) mm.

The fact that this small female is pregnant shows beyond question that *A. cyanogaster* is distinct from *A. atricollis*. It is extremely difficult to differentiate the two species (except on size). With this object in view Mr. Frederick Grinnell spent several days in exploring the possibilities of various characters. I am indebted to him for collecting the statistical data embodied in the preceding paragraphs. The position of the nostril employed by Boulenger in 1885 is not diagnostic.

Uromastix ocellatus Lichtenstein.

Uromastix ocellatus Lichtenstein, Verz. Doubl. Mus. Berlin, p. 107, 1823—Nubia; Anderson, Zool. Egypt, 1, p. 127, pl. xii, 1898.

1 (619): Suakin, Sudan (British Museum).

This specimen is almost certainly one of those mentioned by Anderson. Total length 243 (128+115) mm.

ZONURIDAE

Zonurus macropholis Boulenger.

Zonurus macropholis Boulenger, Ann. S. Afr. Mus., 5, p. 494, 1910—Little Namaqualand; Power, Ann. Transvaal Mus., 14, p. 16, 1930.

3 (16019–21): Kleinsee, Cape Province (Wecke, 1931).

Transverse rows of scales from occiput to base of tail 16–18; longitudinal rows of ventrals 10–12; femoral pores 9–10. Largest specimen measures 119 (67+52) mm. As recently as 1930, Power, in his review of the South African zonures, remarked that *macropholis* was still known only from the type.

Zonurus cordylus cordylus (Linnaeus).

Lacerta cordylus Linnaeus, Syst. Nat., 1, p. 202, 1758—Africa.

Zonurus cordylus Boulenger, Cat. Liz. Brit. Mus., 2, p. 256, 1885.

3 (15545–7): Lady Frere, Cape Province (Romer, 1929).

Transverse rows of scales from occiput to base of tail 29; longitudinal rows of ventrals 12; femoral pores 6-7. Largest perfect specimen measures 145 (70+75) mm.

VARANIDAE

Varanus albigularis angolensis Schmidt.

Varanus albigularis angolensis Schmidt, Ann. Carnegie Mus., 22, p. 10, pl. ii, 1933—Gauca, Bihé, Angola.

1 (12971): Kabengere, Belgian Congo (Zimmer, 1926).

This specimen, a paratype, has not been examined. The skin is very dry and hard and its approximate measurements have been kindly furnished by Mr. K. P. Schmidt as follows: Total length 900 (350+550) mm. The Somaliland Protectorate monitors referred to *albigularis* by Meek are mentioned below.

Varanus ocellatus Heyden.

Varanus ocellatus Heyden, in Rüppell, Reise nörd Afrika, p. 21, pl. vi, 1827—Kordofan, Sudan; Boulenger, Cat. Liz. Brit. Mus., 2, p. 308, 1885.

Varanus albigularis Meek (not Daudin), Field Mus., Zool. Ser., 1, p. 181, 1897.

1 (378): Betteran, Somaliland Protectorate (Akeley, 1896).

This is one of the two specimens referred to *albigularis* by Meek and re-identified as *ocellatus* by Schmidt. As it is on exhibition it has not been examined. The second specimen has not been found.

Varanus niloticus (Linnaeus).

Lacerta nilotica Linnaeus, Syst. Nat., 12th ed., 1, p. 369, 1766—Egypt.

Varanus niloticus Boulenger, Cat. Liz. Brit. Mus., 2, p. 318, 1885; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 409, 1910.

1 (12300): Uleia, Tanganyika Territory (Zimmer, 1926).

1 (12737): Gendoa River, Ethiopia (Osgood, 1927).

1 (12975): Katobwe, Belgian Congo (Zimmer, 1926).

The Nilotic monitor from Kisumu, Kenya Colony, mentioned by Meek cannot be located, but there is no reason for doubting the identification as these lizards are abundant on the shores of Lake Victoria and I have seen them at Kisumu. The specimens listed above are young; the Ethiopian monitor has had the body skinned out.

LACERTIDAE

Lacerta jacksoni Boulenger.

Lacerta jacksoni Boulenger, Proc. Zool. Soc. Lond., p. 96, pl. x, 1899—Mau Ravine, Kenya Colony; Boulenger, Monog. Lacertid., 1, p. 295, 1920.

1 (9863): Lake Bunyoni, Uganda (Heller, 1925).

Ventral plates in 8 longitudinal series; lamellae under fourth toe 22; femoral pores 18–18. Length from snout to anus 78 mm., tail missing.

***Algiroides boulengeri* Peracca.**

Algiroides boulengeri Peracca, Atti. Acc. Torin, 52, p. 351, 1917—Fort Portal, Uganda; Boulenger, Monog. Lacertid., 1, p. 351, 1920.

1 (12182): Lake Bunyoni, Uganda (Heller, 1925).

Longitudinal dorsal scale-rows 33; lamellae beneath fourth toe 16; femoral pores 7–8. Length from snout to anus 29 mm., tail missing.

***Latastia longicaudata longicaudata* (Reuss).**

Lacerta longicaudata Reuss, Mus. Senckenb., 1, p. 29, 1834—Abyssinia.

Latastia longicaudata Boulenger, Monog. Lacertid., 2, p. 25, 1921.

1 (615): Suakin, Sudan (British Museum).

Longitudinal dorsal scale-rows 57; transverse ventral scale-rows 30; femoral pores 12. Total length 391 (102+289) mm.

***Latastia longicaudata revoili* (Vaillant).**

Eremias revoili Vaillant, Miss. Révoil Pays Comal., Rept., p. 20, pl. iii, fig. 2, 1882—Somaliland.

Latastia longicaudata var. *revoili* Boulenger, Monog. Lacertid., 2, p. 30, 1921.

1 (8871): Tsavo, Kenya Colony (Heller, 1921).

4 (12234–5, 12252–3): Lake Manka, Tanganyika Territory (Zimmer, 1926).

1 (12274): Mnazi, Tanganyika Territory (Zimmer, 1926).

Longitudinal dorsal scale-rows 59–81; transverse ventral scale-rows 26–28; femoral pores 8–10. Largest specimen measures 351 (87+264) mm.

***Philochortus hardeggeri* (Steindachner).**

Latastia hardeggeri Steindachner, Ann. Naturhist. Hofmus. Wien, 6, p. 371, pl. xi, 1891—Harar on the way from Heusa, Ethiopia.

Latastia carinata Meek (not of Peters), Field Mus., Zool. Ser., 1, p. 179, 1897.

Philochortus hardeggeri Boulenger, Monog. Lacertid., 2, p. 12, 1921.

1 (371): Haud, Ethiopia (Akeley, 1896).

Longitudinal dorsal scale-rows 25; lamellae under fourth toe 28; femoral pores 12. Total length 173 (57+116) mm.

***Acanthodactylus pardalis pardalis* (Lichtenstein).**

Lacerta pardalis Lichtenstein, Verz. Doubl. Mus. Berlin, p. 99, 1823—Egypt.

Acanthodactylus pardalis Boulenger, Monog. Lacertid., 2, p. 62, 1921.

3 (608): Alexandria, Egypt (Flower).

Longitudinal dorsal scale-rows 59–62; longitudinal ventral scale-rows 12; lamellae under fourth toe 18–20; subocular not bordering the mouth. Largest specimen measures 149 (60+89) mm.

***Acanthodactylus boskianus asper* (Audouin).**

Lacerta asper Audouin, Descr. l'Egypte, Rept., Suppl., p. 174, pl. i, fig. 10, 1829—Egypt.

Acanthodactylus boskianus var. *asper* Boulenger, Monog. Lacertid., 2, p. 86, 1921.

10 (593, 1856): Tel el Amarna, Egypt (British Museum).

Longitudinal dorsal scale-rows 29–38; subocular not bordering the mouth; first supraocular not divided; femoral pores 17–22. Largest perfect specimen measures 200 (66+134) mm.

***Acanthodactylus scutellatus scutellatus* (Audouin).**

Lacerta scutellata Audouin, Descr. l'Egypte, Rept., Suppl., p. 172, pl. i, fig. 7, 1829—Egypt.

Acanthodactylus scutellatus Boulenger, Monog. Lacertid., 2, p. 97, 1921.

2 (613): Between Suez and Ismailia, Egypt (British Museum).

Longitudinal dorsal scale-rows 77–79; longitudinal ventral scale-rows 16; lamellae under fourth toe 23–26. Largest specimen measures 149 (54+95) mm.

***Eremias spekii spekii* Günther.**

Eremias spekii Günther, Ann. Mag. Nat. Hist., (4), 9, p. 381, 1872—Unyamwezi, Tanganyika Territory; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 409, 1910; Boulenger, Monog. Lacertid., 2, p. 235, 1921.

7 (2363, 2379): Voi, Kenya Colony (Akeley, 1906).

4 (12241, 12254–6): Lake Manka, Tanganyika Territory (Zimmer, 1926).

1 (12273): Mnazi, Tanganyika Territory (Zimmer, 1926).

Longitudinal dorsal scale-rows 61–75; longitudinal ventral scale-rows 6; lamellae under fourth toe 22–26; subocular borders the lip. Largest specimen measures 153 (50+103) mm.

Eremias mucronata (Blanford).

Acanthodactylus mucronatus Blanford, Zool. Abyss., p. 453, fig., 1870—
Anseba, Eritrea.

Eremias brenneri Meek (not of Peters), Field Mus., Zool. Ser., 1, p. 181, 1897.

Eremias mucronata Boulenger, Monog. Lacertid., 2, p. 244, 1921.

2 (368): Betteran, Somaliland Protectorate (Akeley, 1896).

3 (610): Suakin, Sudan (British Museum).

Longitudinal dorsal scale-rows 63–75; longitudinal ventral rows 6–8; subocular borders the lip in the Suakin series but not in the lizards from Betteran. Boulenger has, however, pointed out that this is an inconstant character. Largest specimen measures 152 (48+104) mm.

Eremias guttulata guttulata (Lichtenstein).

Lacerta guttulata Lichtenstein, Verz. Doubl. Mus. Berlin, p. 101, 1823—
Egypt and Nubia.

Eremias guttulata Boulenger, Monog. Lacertid., 2, p. 258, 1921.

2 (612): Karnak, Egypt (British Museum).

1 (3964): El Kantara, Algeria (Buxton, 1913).

Longitudinal dorsal scale-rows 44–46; longitudinal ventral scale-rows 8–10; subocular bordering the lip. Largest specimen measures 156 (45+111) mm.

Eremias rubropunctata (Lichtenstein).

Lacerta rubropunctata Lichtenstein, Verz. Doubl. Mus. Berlin, p. 100, 1823—
Egypt and Nubia.

Eremias rubropunctata Boulenger, Monog. Lacertid., 2, p. 276, 1921.

3 (591): Giza, Egypt (British Museum).

Longitudinal dorsal scale-rows 53–59; longitudinal ventral scale-rows 12; rostral in contact with the frontonasal. Largest specimen measures 126 (45+81) mm.

Eremias lineo-ocellata Duméril and Bibron.

Eremias lineo-ocellata Duméril and Bibron, Erpét. Gén., 5, p. 314, 1831—
South Africa; Boulenger, Monog. Lacertid., 2, p. 289, 1921.

3 (15542–4): Lady Frere, Cape Province (Romer, 1929).

Longitudinal dorsal scale-rows 61–69; longitudinal ventral scale-rows 12; lamellae under fourth toe 24–26; femoral pores 12–14. Largest specimen measures 125 (42+83) mm.

Scapteira reticulata Bocage.

Scapteira reticulata Bocage, Ann. Mag. Nat. Hist., (3), 20, p. 225, 1867—Mossamedes, Angola.

Scaptira reticulata Boulenger, Monog. Lacertid., 2, p. 357, 1921.

1 (15452): Namib Desert, Southwest Protectorate (Gaerdes, 1928).

Longitudinal dorsal scale-rows 56; longitudinal ventral scale-rows 16; femoral pores 20–22. Total length 141 (51+90) mm. At the time that Boulenger wrote the second volume of his monograph (1921) this rare lizard was still unrepresented in the British Museum collection.

Scapteira ctenodactyla (Smith).

Lacerta ctenodactyla A. Smith, Mag. Nat. Hist., (2), 2, p. 93, 1838—Great Namaqualand, Southwest Africa.

Scaptira ctenodactyla Boulenger, Monog. Lacertid., 2, p. 358, 1921.

1 (1857): Port Nolloth, Cape Province (British Museum).

Longitudinal dorsal scale-rows 79; longitudinal ventral scale-rows 22; femoral pores 30. Total length 194 (80+114) mm.

Aporosaura anchietae (Bocage).

Pachyrhynchus anchietae Bocage, Ann. Mag. Nat. Hist., (3), 20, p. 227, fig., 1867—Rio Croco, Mossamedes, Angola.

Aporosaura anchietae Boulenger, Monog. Lacertid., 2, p. 376, 1921.

1 (15453): Namib Desert, Southwest Protectorate (Gaerdes, 1928).

Longitudinal dorsal scale-rows 170; longitudinal ventral scale-rows 38. Total length 109 (49+60) mm. male.

Holaspis guentheri Gray.

Holaspis guentheri Gray, Proc. Zool. Soc. Lond., p. 153, pl. xx, fig. 1, 1863—habitat unknown; Boulenger, Monog. Lacertid., 2, p. 377, 1921.

1 (1858): Benito River, Spanish Guinea (British Museum).

1 (3963): Bitye, Cameroon (Bates).

1 (12299): Uleia, Tanganyika Territory (Zimmer, 1926).

Longitudinal dorsal scale-rows 65–69; longitudinal ventral scale-rows 6; femoral pores 18–21. Longest specimen measures 102 (50+52) mm. The Uleia record is of exceptional interest for it shows that this lizard is able to live at an altitude considerably below 2,000 feet in East Africa. Traces of rain forest still exist in the vicinity of Uleia though the region has long ago undergone deforestation and is mostly given over to dry bush.

GERRHOSAURIDAE

Gerrhosaurus major major Duméril.

Gerrhosaurus major Duméril, Cat. method. coll. Rept., Paris, p. 139, 1851—Zanzibar; Boulenger, Cat. Liz. Brit. Mus., 3, p. 121, 1887; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 409, 1910.

1 (2385): Voi, Kenya Colony (Akeley, 1906).

Transverse dorsal scale-rows 34; longitudinal dorsal scale-rows 18 (not 12 as in Meek); longitudinal ventral scale-rows 9 (not 10 as in Meek); frontonasal narrowly *separated* from the rostral. In other respects Meek's detailed description and measurements of this young specimen are correct.

Gerrhosaurus major zechi Tornier.

Gerrhosaurus maior zechi Tornier, Beiheft, Arch. Naturg., 67, p. 74, 1901—Kete Kratje, Togoland.

Gerrhosaurus zechi Schmidt, Bull. Amer. Mus. Nat. Hist., 39, p. 519, text fig. 21, 1919.

1 (15074): Bisan River, Ethiopia (Albrecht, 1929).

Transverse dorsal scale-rows 36; longitudinal dorsal scale-rows 18; longitudinal ventral scale-rows 10; femoral pores 13. Total length 422 (192+230) mm.

As a result of obtaining thirty-one *zechi* at Mangasini in central Tanganyika I am inclined to recognize it as a race of *major*. The Bisan River specimen is the first record of the occurrence of *zechi* in Ethiopia known to me; it makes it still more probable that *zechi* will prove to be a synonym of *bottegoi* Del Prato (1892) from Eritrea as has been suggested by Schmidt (1919). The Bisan River lizard does not appear to differ from the Mangasini series.

Gerrhosaurus flavigularis flavigularis Wiegmann.

Gerrhosaurus flavigularis Wiegmann, Isis, p. 379, 1828—"Africa Merid. Krebs"; Boulenger, Cat. Liz. Brit. Mus., 3, p. 122, 1886; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 409, 1910.

3 (2374-5): Nairobi, Kenya Colony (Akeley, 1906).

1 (12275): Mnazi, Tanganyika Territory (Zimmer, 1926).

Transverse dorsal scale-rows 57-59; longitudinal dorsal scale-rows 22; longitudinal ventral scale-rows 8; femoral pores 12-17; prefrontals in contact in the Nairobi lizards, separated in the Mnazi specimen. Largest specimen measures 457 (147+310) mm.

Gerrhosaurus flavigularis nigrolineatus Hallowell.

Gerrhosaurus nigro-lineatus Hallowell, Proc. Acad. Nat. Sci. Phila., p. 49, 1857—Gaboon.

Gerrhosaurus nigrolineatus Boulenger, Cat. Liz. Brit. Mus., 3, p. 122, 1887.

2 (3961-2): Gaboon, French Congo (Ansorge).

12 (15370-81): Cuma, Angola (Hambly, 1929).

Transverse dorsal scale-rows 54-60; longitudinal dorsal scale-rows 22-24; longitudinal ventral scale-rows 8; laterals faintly keeled, a few almost smooth; femoral pores 13-18. Longest specimen (Gaboon) measures 292 (156+136) mm.

SCINCIDAE

Mabuya maculilabris (Gray).

Euprepis maculilabris Gray, Cat. Liz. Brit. Mus., p. 114, 1845—West Africa.

Mabuya maculilabris Boulenger, Cat. Liz. Brit. Mus., 3, p. 164, pl. ix, fig. 2, 1887.

Mabuya maculilabris Barbour and Loveridge, Mem. Mus. Comp. Zool., 50, p. 157, 1928.

1 (3971): Sese Islands, Lake Victoria, Uganda.

1 (3972): 4,500 ft., Mount Ruwenzori, Uganda (Ruwenzori Expedition).

1 (6981): Bunia, Belgian Congo (Heller, 1924).

1 (6987): Lake Kivu, Belgian Congo (Heller, 1924).

6 (8995-9000): Belgian Congo (Heller, 1925).

3 (12291, 12303, 12312): Uleia, Tanganyika Territory (Zimmer, 1926).

31 (12772): Beni, Semliki, Belgian Congo (Heller, 1925).

4 (12773-6): Irumu, Belgian Congo (Heller, 1925).

1 (12871): Katobwe, Belgian Congo (Zimmer, 1926).

2 (12895, 12901): Kabengere, Belgian Congo (Zimmer, 1926).

The data available from this very fine series of a difficult species had best be presented in tabular form. The localities are arranged as far as is possible from west to east.

Locality	Number of specimens	Greatest head and body length	Longest tail	Midbody scale-rows	Number of supraciliaries	Keels on scales
Katobwe	1	87	127	32	5	9
Kabengere	2	79	...	32-34	5	5-7
Lake Kivu	1	74	156	36	5	7
Ruwenzori	1	56	90	32	5	5
Bambuni	6	85	159	32-34	5	5
Beni	31	83	175	32-34	4-6	5-7
Bunia	1	86	...	32	5	9
Sese Islands	1	73	...	34	5	7
Uleia	3	86	169	30	4-5	7-9

At first glance it would appear that the skinks from the east of the great lakes (i.e. Uleia, Tanganyika Territory) could be separated from western specimens on the basis of the smaller number of scale-rows. Unfortunately the position is complicated by numerous individuals occurring in East Africa with 32 midbody scale-rows, occasionally even 34 (Ujiji). Undoubtedly there is a tendency to reduction as one proceeds eastwards and for such the name *boulengeri* proposed by Sternfeld is available. The position is complicated by the presence in surviving rain forest, chiefly on mountains but also on the coast, of a big-bodied form with 34–38 scale-rows, for which I have employed the name *comorensis*. There is much to be done to elucidate the relationship of *maculilabris* and possible forms. Largest specimen measures 214 (87+127) mm.

Mabuya polytropis Boulenger.

Mabuia polytropis Boulenger, Ann. Mag. Nat. Hist., (7), 12, p. 433, 1903—Benito River, Gaboon.

2 (17041–2): Batan, Cameroon (University of Chicago, 1903).

Midbody scale-rows 32; dorsals with 9–11 keels; supraciliaries 6–8, the latter being unusually high. Larger specimen measures 182 (90+92) mm. but its tail is obviously regenerated for the smaller skink has a tail of 142 mm.

Mabuya blandingii (Hallowell).

Euprepes blandingii Hallowell, Proc. Acad. Nat. Sci. Phila., p. 58, 1844—Liberia.

Euprepis raddoni Gray, Cat. Liz. Brit. Mus., p. 112, 1845—West Africa.

Euprepes frenatus Hallowell, Proc. Acad. Nat. Sci. Phila., p. 50, 1857—Liberia.

Mabuia raddonii Boulenger, Cat. Liz. Brit. Mus., 3, p. 165, 1887.

Mabuya raddoni Schmidt, Bull. Amer. Mus. Nat. Hist., 39, p. 534, 1919.

2 (3973–4): Ogowe River, French Congo (Ansorge).

1 (3975): Lambarene, Ogowe River, French Congo (Ansorge).

1 (3976): Efulen, Cameroon (Bates).

2 (17043–4): Batan, Cameroon (University of Chicago, 1903).

Midbody scale-rows 28; dorsals tricarinate; supraciliaries 5–7; supranasals separate and prefrontals in contact except in the Lambarene skink. Largest specimen measures 158 (70+88) mm.

Boulenger erroneously gives the date of Hallowell's *blandingii* as 1845 and so gives preference to Gray's *raddoni*; the latter has been in general use ever since. Mr. W. Wedgewood Bowen, formerly of the

Philadelphia Academy of Natural Science, informs me that Hallowell's paper was certainly "published on or before July 19, 1844." In 1905, however, Boulenger revived Hallowell's name *albilabris* for Gaboon specimens in which the prefrontals are in contact. Schmidt (l.c., p. 535) doubted the wisdom of this procedure and after carefully going into the matter I agree entirely with him. Hallowell, it will be noted, found both types in his Liberian material and proposed names for those in which the prefrontals are separated (*blandingii*) as well as for those in which they are in contact (*frenatus*). Of twenty-two Liberian specimens in the Museum of Comparative Zoology, ten have the prefrontals in contact and twelve have them separated; the supranasals are separated in all except two. These proportions from the west of the range are closely paralleled by the data given by Schmidt for nineteen skinks from the Belgian Congo in the east of its range.

Liberian skinks from one locality have supraciliaries varying from 5 to 7, some specimens in fact having 5 on one side of the head and 7 on the other; the limb length is as variable in this species as in *M. varia* and not a good specific criterion, varying in one locality so as to include both *blandingii* and *affinis* though the latter is a distinct species. In our Liberian series the midbody scale-rows range from 28 to 33, in Schmidt's Congo specimens from 28 to 34.

It is instructive to arrange the data of the types which are regarded as synonyms, geographically from west to east. Eventually some of them may prove recognizable as racial forms.

Date	Type locality	Species	Midbody scale-rows	Supranasals	Prefrontals
1872	Portuguese Guinea	<i>gracilis</i>	32	separated	separated
1885	Sierra Leone	<i>pantaenii</i>	29	contact	separated
1844	Liberia	<i>blandingii</i>	30	contact	separated
1857	Liberia	<i>frenatus</i> ¹	33	?	contact
1864	Gold Coast	<i>aeneofuscus</i>	30	separated	separated
1857	Gaboon	<i>albilabris</i> ¹	?	separated	contact
1901	Gaboon: Benito R.	<i>benitensis</i>	28-30	contact	separated
1886	Saint Thomas Id.	<i>cupreus</i>	30	separated	separated
1845	West Africa	<i>raddoni</i>	contact	separated

Mabuya brevicollis (Wiegmann).

Euprepes brevicollis Wiegmann, Arch. Naturg., p. 133, 1837—Abyssinia (Ethiopia).

Mabuia brevicollis Boulenger, Cat. Liz. Brit. Mus., 3, p. 169, 1887; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 410, 1910; Loveridge, Bull. U. S. Nat. Mus., 151, p. 69, 1929.

2 (2349, 2353): Voi, Kenya Colony (Akeley, 1906).

¹ Mr. H. W. Fowler informs me that the types of these two species cannot be located in the collection of the Philadelphia Academy.

2 (2372-3): Lukenya, Kenya Colony (Akeley, 1906).

1 (2376): Athi River, Kenya Colony (Akeley, 1906).

Midbody scale-rows 32-36; supraciliaries 5-6; supranasals (some damaged) in contact or separated; prefrontals in contact in three specimens, separated in two. Largest specimen measures 134 mm. from snout to anus, tail missing.

Mabuya megalura (Peters).

Euprepes (Mabuia) megalura Peters, Monatsb. Akad. Wiss. Berlin, p. 204, pl. ii, fig. 4, 1878—Taita, Kenya Colony.

Mabuia megalura Boulenger, Cat. Liz. Brit. Mus., 3, p. 195, 1887; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 411, 1910.

1 (2358): Voi, Kenya Colony (Akeley, 1906).

2 (2365): Athi Plains, Kenya Colony (Akeley, 1906).

1 (2366): Lukenya, Kenya Colony (Akeley, 1906).

1 (12517): Allata, Ethiopia (Osgood, 1927).

1 (12527): Ethiopia (Osgood, 1927).

1 (12528): Gedeb Mountains, Ethiopia (Osgood, 1926).

Midbody scale-rows 24-28, the previous known range (24-27) occurring in Nairobi specimens; only the Allata skink has 28 in the above series. Largest specimen measures 253 (68+185) mm.

Mabuya quinquetaeniata quinquetaeniata (Lichtenstein).

Scincus quinquetaeniata Lichtenstein, Verz. Doubl. Mus. Berlin, p. 103, 1823—Egypt and Nubia.

Mabuia quinquetaeniata Boulenger, Cat. Liz. Brit. Mus., 3, p. 198, 1887; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 410, 1910; Loveridge, Bull. U. S. Nat. Mus., 151, p. 71, 1929.

3 (12708-9, 12713): West of Lake Tana, Ethiopia (Osgood, 1927).

4 (13124-7): Bulukutoni, Uganda (Zimmer, 1927).

6 (15081-6): Bisan River, Ethiopia (Albrecht, 1929).

Midbody scale-rows 38-42, Ethiopian specimens having 38, Ugandan 38-42. For a discussion of the difficulty of recognizing a southern race (for which the name *margaritifera* Peters is available) see my remarks in the 1929 citation given above.

Mabuya quinquetaeniata obsti Werner.

Mabuia obsti Werner, Mitt. Nat. Mus. Hamburg, 30, p. 43, 1913—Kwa Mtoro, Central Province, Tanganyika Territory.

9 (2350, 2354-5, 2361-2): Voi, Kenya Colony (Akeley, 1906).

Midbody scale-rows 40-46. Largest male measures 234 (91+143) mm., largest female 188 (91+97) mm., but unfortunately her tail is regenerated.

Mabuya varia varia (Peters).

Euprepes (Euprepis) varius Peters, Monatsb. Akad. Wiss. Berlin, p. 20, 1867—Tete, Mozambique.

Mabuia varia Boulenger, Cat. Liz. Brit. Mus., 3, p. 202, 1887; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 411, 1910.

11 (2351, 2364, 2378, 2383): Voi, Kenya Colony (Akeley, 1906).

1 (2356): Lukenya, Kenya Colony (Akeley, 1906).

2 (2368, 2370): Nairobi, Kenya Colony (Akeley, 1906).

9 (2380, 2390): Molo, Kenya Colony (Akeley, 1906).

1 (12276): Mnazi, Tanganyika Territory (Zimmer, 1926).

3 (12894, 12908, 12985): Kabengere, Belgian Congo (Zimmer, 1926).

1 (15087): Bisan River, Ethiopia (Albrecht, 1929).

Nine of the above specimens are embryos and have not been utilized for the following remarks.

Midbody scale-rows 30-34; dorsals tricarinate; frontoparietals paired; subocular largely borders the lip; ear-lobules short; the adpressed hind limb does not reach the axilla except in Numbers 2351 and 12276 from Voi and Mnazi respectively; scales on the soles spinose. Largest specimen (No. 12985) measures 137 (62+75) mm.

The skink from Guban, Somaliland Protectorate, referred to *varia* by Meek in his earlier paper, is in reality an example of *striata*.

Mabuya varia damaranus (Peters).

Euprepes damaranus Peters, Oefvers. Vet.-Akad. Förh., p. 660, 1869—Damaraland.

Mabuya varia var. *longiloba* Methuen and Hewitt, Ann. Transvaal Mus., 4, p. 142, 1914 (1913)—Namaqualand.

3 (16022-4): Kleinsee, Cape Province (Wecke, 1931).

Midbody scale-rows 32; subocular between the fourth and fifth or fifth and sixth labials. These specimens differ from typical *varia* in their uniformly long ear-lobules and their smaller size, for the largest specimen is a gravid female measuring 96 (43+53) mm. Size, however, is not a safe guide, to judge by the paratype of *longiloba* in the collection of the Museum of Comparative Zoology.

Placed with the Field Museum series of *M. v. varia* these Kleinzee skinks are immediately conspicuous by their darker coloring and absence of markings, but this character is an average one as occasional individuals without markings are found in East Africa and sometimes specimens with markings in Southwest Africa.

In 1928 (Barbour and Loveridge, 1928, Mem. Mus. Comp. Zool., p. 160) I was party to considering *longiloba* a synonym of *varia* as occasional individuals taken in desert areas of East Africa have much longer lobules than those from the grasslands. It would appear that the size of the lobules is a response to the need for protecting the ear-opening from drifting sand. I now consider that *longiloba* does represent a recognizable race in the southwest but that *damaranus* of Peters has precedence.

Mabuia striata (Peters).

Tropidolepisma striatum Peters, Monatsb. Akad. Wiss. Berlin, p. 36, 1844—Mozambique.

Mabuia striata Boulenger, Cat. Liz. Brit. Mus., 3, p. 204, 1887; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 411, 1910.

Mabuia varia Meek (not Peters), Field Mus. Nat. Hist., Zool. Ser., 1, p. 181, 1897.

1 (367): Durban, Guban, Somaliland Protectorate (Akeley, 1896).

2 (2352, 2357): Lukenya, Kenya Colony (Akeley, 1906).

5 (2367, 2371, 6564): Nairobi, Kenya Colony (Akeley, 1906).

3 (2428-9): Lake Elmenteita, Kenya Colony (Akeley, 1906).

5 (8990-4): Bambuni, Belgian Congo (Heller, 1925).

2 (12277-8): Mnazi, Tanganyika Territory (Zimmer, 1926).

1 (12304): Uleia, Tanganyika Territory (Zimmer, 1926).

1 (12322): Matameras, Tanganyika Territory (Zimmer, 1926).

3 (12330-1, 12335): Ulambo, Tanganyika Territory (Zimmer, 1926).

1 (12524): Awadi River, Ethiopia (Osgood, 1927).

2 (12807-8): Mambawanga Hill, Belgian Congo (Heller, 1925).

3 (12901, 12913, 12964): Kabengere, Belgian Congo (Zimmer, 1926).

Midbody scale-rows 32-40; prefrontals separated in all except No. 12330 where they are barely in contact. Largest specimen measures 88 mm. from snout to anus, tail missing.

Emoia breviceps (Peters).

Euprepis (Mabuia) breviceps Peters, Monatsb. Akad. Wiss. Berlin, p. 604, 1873—Gaboon (i.e. French Congo).

Lygosoma breviceps Boulenger, Cat. Liz. Brit. Mus., 3, p. 300, 1887.

Mabuia batesii Boulenger, Proc. Zool. Soc. Lond., p. 449, pl. xxi, fig. 2, 1900—Benito River, French Congo.

2 (3977–8): Kribi River, Cameroon (Bates).

Midbody scale-rows 32; unfortunately the Catalogue of Lizards gives these as 56–57 which in reality is the number of transverse ventral scale-rows; in specimen No. 3977 the prefrontals are fused into one shield excluding the internasal from contact with the frontal; in specimen No. 3978 the internasal and frontal are in contact. A topotype of *batesii* received from the British Museum is undoubtedly conspecific with our series of Cameroon *breviceps*. Larger specimen measures 123 (61+62) mm.

Riopa fernandi (Burton).

Tiliqua fernandi Burton, Proc. Zool. Soc. Lond., p. 62, 1836—Fernando Po.

Lygosoma fernandi Boulenger, Cat. Liz. Brit. Mus., 3, p. 304, 1887.

1 (12763): Beni, Belgian Congo (Heller, 1925).

Midbody scale-rows 36. Length from snout to anus 112 mm., tail missing.

Riopa sundevallii (Smith).

Eumeces (Riopa) sunderallii (sic) A. Smith, Illus. Zool. S. Africa, 3, App., p. 11, 1849—Natal.

Lygosoma sunderallii Boulenger, Cat. Liz. Brit. Mus., 3, p. 307, 1887; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 412, 1910.

1 (6565): Kijabe, Kenya Colony (Akeley, 1906).

2 (12301, 12308): Uleia, Tanganyika Territory (Zimmer, 1926).

Midbody scale-rows 24–26. Largest specimen measures 205 (115+90) mm.

Siaphos graueri graueri (Sternfeld).

Lygosoma graueri Sternfeld, Wiss. Ergebn. Deutsch-Zentral-Afrika-Exped., 4, p. 240, fig. 3, and *quinquedigitata*, p. 241, pl. vi, fig. 5, 1912—Karisimbi and vicinity, Belgian Ruanda-Urundi.

1 (9864): 8,500 ft., Sabinio Volcano, Uganda (Heller, 1925).

1 (9865): 8,300 ft., Bihunga Escarpment, Uganda (Heller, 1925).

Midbody scale-rows 22; fingers 5; toes 5; belly spotted. Larger specimen measures 64 mm. from snout to anus, tail missing.

After describing *graueri* Sternfeld remarks that it may be divided into two subspecies and gives a name to each; the first of these, *quinquedigitata*, must be regarded as synonymous with *graueri*.

Siaphos meleagris helleri Loveridge.

Siaphos meleagris helleri Loveridge, Proc. Biol. Soc. Wash., 45, p. 113, 1932—
Bugongo Ridge, Ruwenzori, Belgian Congo.

1 (12749): Bugongo Ridge, Belgian Congo (Heller, 1925).

This is the type and only known specimen; by a stupid mistake I gave the Bugongo Ridge as being on the Uganda side of the Ruwenzori range though I had ascertained that it was on the western (Belgian Congo) side. It is the typical form that occurs on the Uganda slopes.

Ablepharus wahlbergii (Smith).

Cryptoblepharus wahlbergii A. Smith, Illus. Zool. S. Africa, 3, App., p. 10, 1849—Natal.

Ablepharus wahlbergii Boulenger, Cat. Liz. Brit. Mus., 3, p. 350, 1887; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 412, 1910.

1 (2352): Lukenya, Kenya Colony (Akeley, 1906).

1 (2381): Voi, Kenya Colony (Akeley, 1906).

2 (2391): Nairobi, Kenya Colony (Akeley, 1906).

3 (12289, 12305, 12313): Uleia, Tanganyika Territory (Zimmer, 1926).

Midbody scale-rows 24–26, average 25. Largest specimen measures 51 mm. (not 46 as given by Meek) from snout to anus, tail missing.

Scincus scincus scincus (Linnaeus).

Lacerta stincus (sic) Linnaeus, Syst. Nat., 1, p. 205, 1758—Libya; Egypt; Arabia petraea.

Scincus officinalis Boulenger, Cat. Liz. Brit. Mus., 3, p. 391, 1887.

Scincus officinalis lineolata Werner, Sitzber. Akad. Wiss. Wien, 123, p. 343, 1914—Egypt.

4 (607, 1869): Cairo, Egypt (Flower and British Museum).

Midbody scale-rows 26; supraoculars 6. Largest specimen measures 155 (104+51) mm.

Linnaeus' name *scincus* has precedence over *officinalis*, which has been more commonly employed. Werner's race *lineolata* is apparently indistinguishable from the typical form. Trinomials are, however, necessary on account of the other color races proposed by

him, both of which are represented in the Museum of Comparative Zoology.

***Chalcides ocellatus ocellatus* (Forskål).**

Lacerta ocellata Forskål, Hist. Anim., p. 13, 1775—Egypt.

Chalcides ocellatus (part) Boulenger, Cat. Liz. Brit. Mus., 3, p. 400, 1887.

Lygosoma (sic) *akeleyi* Meek, Field Mus. Nat. Hist., Zool. Ser., 1, p. 182, 1897
—Berbera, British Somaliland.

2 (366, 369): Berbera, British Somaliland (Akeley, 1896).

1 (606): Alexandria, Egypt (Flower).

Midbody scale-rows 28–30. Largest specimen measures 190 (94+96) mm. This is the paratype of *akeleyi* Meek which appears to be indistinguishable from the typical form of *ocellatus*, as already pointed out by Boulenger in 1898. It cannot be identified with either *C. o. ragazzii* Boulenger from Assab, Eritrea, or *C. o. humilis* Boulenger from Ghinda, Eritrea.

***Chalcides ocellatus tiligugu* (Gmelin).**

(*Lacerta*) *tiligugu* Gmelin, in Linnaeus, Syst. Nat., 13th ed., 1, p. 1073, 1788—Sardinia.

Chalcides ocellatus (part) Boulenger, Cat. Liz. Brit. Mus., 3, p. 400, 1887.

2 (588): Algiers, Algeria (British Museum).

2 (3969–70): El Kantara, Algeria (Buxton, 1913).

Midbody scale-rows 30–32. Largest specimen measures 216 (130+86) mm. The distribution of this color race in relation to that of the typical form is peculiar. About a dozen races have been described of which eight are in the collection of the Museum of Comparative Zoology.

***Chalcides bottegi bottegi* Boulenger.**

Chalcides bottegi Boulenger, Ann. Mus. Civ. Nat. Stor. Genova, (2), 18, p. 719, pl. x, fig. 1, 1898—Sancurar and Amarr, Ethiopia.

Chalcides pulchellus Mocquard, Bull. Mus. Hist. Nat. Paris, p. 466, 1906—Lobi District, French Sudan.

1 (1870): Zegi, Ethiopia (British Museum).

Midbody scale-rows 24. Total length 193 (101+92) mm. This specimen agrees closely with the description of *bottegi* and judging also from the description of *pulchellus* the latter only differs from *bottegi* in possessing spotting on the under side of the tail. In this respect it agrees with the western race listed below, though in possessing 24 midbody scale-rows its affinities seem close to the

typical form. Mocquard compared it with *ocellatus*, apparently having overlooked the description of *bottegi*, as well as that of *thierryi*, both of which have the two median rows of dorsal scales much enlarged.

Chalcides bottegi thierryi Tornier.

Chalcides bottegi var. *thierryi* Tornier, Arch. Naturg., p. 87, 1901—Mangu and Jendi, Togoland.

1 (16370): Marama, Nigeria (Heckman).

Midbody scale-rows 20. Total length 275 (130+145) mm. This example agrees very closely with Tornier's description which was based on two specimens each possessing 20 midbody scale-rows.

Chalcides delislii Boulenger.

Chalcides delislii Boulenger, Cat. Liz. Brit. Mus., 3, p. 407, 1887—? Senegambia.

1 (595): Suakin, Sudan (British Museum).

Midbody scale-rows 24; fore limbs tridactyl; hind limbs tetradactyl. Length from snout to anus 85 mm., tail missing.

Chalcides sepoides (Audouin).

Scincus sepoides Audouin, Descr. l'Egypte, Rept., Suppl., p. 180, pl. ii, figs. 9 and 10, 1829—Egypt.

Chalcides sepoides Boulenger, Cat. Liz. Brit. Mus., 3, p. 407, 1887.

2 (618): Giza, Egypt (British Museum).

Midbody scale-rows 24; all limbs pentadactyl. Larger specimen measures 133 (86+47) mm.

Scelotes bipes (Linnaeus).

Anguis bipes Linnaeus, Syst. Nat., 1, p. 227, 1758—"Indiis."

Scelotes bipes Boulenger, Cat. Liz. Brit. Mus., 3, p. 414, 1887.

2 (16025-6): Kleinsee, Cape Province (Wecke, 1931).

Midbody scale-rows 18; hind limbs didactyl. Larger specimen measures 147 (91+56) mm.

Feylinia currori currori Gray.

Feylinia currori Gray, Cat. Liz. Brit. Mus., p. 129, 1845—Angola; Boulenger, Cat. Liz. Brit. Mus., 3, p. 431, 1887.

1 (3991): Bitye, Cameroon (Bates).

Midbody scale-rows 22, also on neck and in front of anus; third labial in contact with eye. Total length 132 (95+37) mm.

Typhlosaurus meyeri Boettger.

Typhlosaurus meyeri Boettger, Abh. Mus. Dresden, No. 5 (no pagination), 1894—Angra Pequena, Southwest Africa.

5 (16027–30, 16034): Kleinsee, Cape Province (Wecke, 1931).

Midbody scale-rows 14; rostral about equal in length to the total length of all the other head-shields together. Largest specimen measures 131 (106+25) mm. The coloration of the series is of two types; three specimens have a broad, chocolate-colored, vertebral band, four scales in width from the parietals to the end of the tail where it tapers to two scales in width. In these examples the ventral aspect of the tail is dusky. The remaining two skins are pink and white respectively without markings except for an ill-defined dusky streak from the nostril to the eye, the occipital spot and a trace of pigmentation on, or around, the tip of the tail.

Typhlosaurus vermis Boulenger.

Typhlosaurus vermis Boulenger, Cat. Liz. Brit. Mus., 3, p. 434, pl. xxxviii, fig. 4, 1887—Cape of Good Hope.

3 (16031–3): Kleinsee, Cape Province (Wecke, 1931).

Midbody scale-rows 12; rostral about equal in length to twice the total length of all the other head-shields together. Largest specimen measures 239 (201+38) mm.

CHAMAELEONTIDAE

Chamaeleon chamaeleon (Linnaeus).

Lacerta chamaeleon Linnaeus (part), Syst. Nat., 1, p. 204, 1758—Africa.

Chamaeleon vulgaris Boulenger, Cat. Liz. Brit. Mus., 3, p. 443, 1887.

3 (594): Wadi Halfa, Sudan (British Museum).

1 (1583): North Africa (Basel Museum).

Chamaeleon basiliscus Cope.

Chamaeleo basiliscus Cope, Proc. Acad. Nat. Sci. Phila., p. 316, 1868—Kor-usko, Nubia, Sudan.

Chamaeleon basiliscus Boulenger, Cat. Liz. Brit. Mus., 3, p. 466, 1887.

1 (12727): Devark, Ethiopia (Osgood, 1927).

Chamaeleon senegalensis Daudin.

Chamaeleo senegalensis Daudin, Hist. Nat. Gen. Rept., 4, p. 203, 1802—region watered by the Senegal and Niger rivers; Gambia and Guinea.

Chamaeleon laevigatus Gray, Proc. Zool. Soc. Lond., p. 95, 1863—500 miles south of Khartum, Sudan.

Chamaeleon senegalensis Boulenger, Cat. Liz. Brit. Mus., 3, p. 448, 1887.

1 (13122): Northern Province, Uganda (Zimmer, 1927).

Chamaeleon gracilis gracilis Hallowell.

Chamaeleo gracilis Hallowell, Journ. Acad. Nat. Sci. Phila., p. 324, pl. xviii, 1842—Monrovia, Liberia.

Chamaeleon gracilis Boulenger, Cat. Liz. Brit. Mus., 3, p. 448, 1887.

1 (3965): Belgian Congo (Rosenberg).

Owing to the immaturity of this specimen it is impossible to decide whether it should belong to the typical race or to *etiennaei* Schmidt.

Chamaeleon dilepis dilepis Leach.

Chamaeleo dilepis Leach, in Bowdich, Miss. Ashantee, App. p. 493, 1819—Gaboon.

Chamaeleon dilepis Boulenger, Cat. Liz. Brit. Mus., 3, p. 450, 1887.

3 (12323, 12336, 12342): Tanganyika Territory (Zimmer, 1926).

1 (12857): Katobwe, Belgian Congo (Zimmer, 1926).

6 (12906, 12965, 12970, 12979, 12984, 12989): Kabengere, Belgian Congo (Zimmer, 1926).

1 (13123): Katungulu, Mwanzi, Uganda (Zimmer, 1927).

5 (15365-9): Cuma, Angola (Hambly, 1929).

1 (15461): Caconda, Angola (Hambly, 1929).

All of the Angolan specimens with the exception of Number 15365, which is typical *dilepis*, might well be referred to *C. d. quilensis* Bocage but Numbers 12323 and 12857 have also the small lobes of *quilensis* and it is Dr. H. Hechenbleikner's opinion that the occurrence of chameleons of the *quilensis* type is so erratic that it hardly merits recognition as a geographic race.

Chamaeleon dilepis roperi Boulenger.

Chamaeleon roperi Boulenger, Proc. Zool. Soc. Lond., p. 85, pl. viii, fig. 4, 1890—Kilifi, north of Mombasa, Kenya Colony.

Chamaeleon dilepis Meek (not of Leach), Field Mus. Nat. Hist., Zool. Ser., 7, p. 414, 1910.

2 (2295, 6449): Machakos, Kenya Colony (Akeley, 1906).

1 (2388): Voi, Kenya Colony (Akeley, 1906).

1 (15075): Bisan River, Ethiopia (Albrecht, 1929).

Chamaeleon bitaeniatus bitaeniatus Fischer.

Chamaeleo bitaeniatus Fischer, Jahrb. Hamb. Wiss. Anst., 1, p. 23, pl. ii, fig. 7, 1884—Lake Naivasha, Kenya Colony.

Chamaeleon bitaeniatus Boulenger, Cat. Liz. Brit. Mus., 3, p. 452, 1887.

Chamaeleon ellioti Meek (not of Günther), Field Mus. Nat. Hist., Zool. Ser., 7, p. 414, 1910.

10 (2254, 2282-3, 2287, 2290-1, 2294, 2297): Lukenya, Kenya Colony (Akeley, 1906).

2 (2285-6): Kijabe, Kenya Colony (Akeley, 1906).

4 (9866-9): Kigezi District, Uganda (Heller, 1925).

9 (9870-1, 9873, 9875-6, 9878, 9880-2): Kisolo, Uganda (Heller, 1925).

1 (12762): Beni, Belgian Congo (Heller, 1925).

1 (12832): Ruchuru, Belgian Congo (Heller, 1925).

The Uganda and Belgian Congo specimens are referred to the typical race with some doubt. They agree with the typical form in the elevation of the casque as compared with the length of the mouth; in size, however, they are larger than typical *bitaeniatus* of the East African highlands. This may be a result of the more tropical conditions under which they live or they may be regarded as intermediates between the typical form and *ellioti*.

Chamaeleon bitaeniatus ellioti Günther.

Chamaeleon ellioti Günther, Ann. Mag. Nat. Hist., (6), 15, p. 524, pl. xxi, fig. A, 1895—foot of Mount Ruwenzori, Uganda.

2 (1844): Mount Ruwenzori, Uganda (British Museum).

1 (6979): Lake Kivu, Belgian Ruanda-Urundi (Heller, 1924).

1 (12782): Kisenji, Belgian Ruanda-Urundi (Heller, 1924).

1 (12806): Mambawanga Hill, Belgian Congo (Heller, 1925).

The Lukenya specimens referred to *ellioti* by Meek are typical *bitaeniatus* as recorded above.

Chamaeleon bitaeniatus rudis Boulenger.

Chamaeleon rudis Boulenger, Ann. Mag. Nat. Hist., (7), 18, p. 473, 1906—Mount Ruwenzori, Uganda.

4 (9872, 9874, 9877, 9879): Kisolo, Uganda (Heller, 1926).

Chamaeleon bitaeniatus höhnelii Steindachner.

Chamaeleon höhnelii Steindachner, Sitzber. Akad. Wiss. Wien, 100, p. 307, pl. i, fig. 1, 1891—Leikipia, Kenya Colony.

Chamaeleon hoehneli (sic) Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 413, 1910.

Chamaeleon bitaeniatus höhnelii Loveridge, Bull. U. S. Nat. Mus., 151, p. 87, 1929.

1 (1845): Lagari, Kenya Colony (Betton).

2 (2281): Kijabe, Kenya Colony (Akeley, 1906).

4 (2288-9, 2292-3): Lukenya, Kenya Colony (Akeley, 1906).

Young+7 (2295, 6423, 6425-9): Molo, Kenya Colony (Akeley, 1906).

2 (2299, 2304): Mount Kenya, Kenya Colony (Akeley, 1906).

3 (2307-8, 2389): Voi, Kenya Colony (Akeley, 1906).

Chamaeleon pumilus Daudin.

Chamaeleo pumilus Daudin, Hist. Nat. Gen. Rept., 4, p. 212, pl. liii, 1801—
Cape of Good Hope.

Chamaeleon pumilus Boulenger, Cat. Liz. Brit. Mus., 3, p. 458, 1887.

2 (1846): Port Elizabeth, Cape Province (British Museum).

1 (16002): Port Nolloth, Cape Province (Wecke, 1931).

Chamaeleon affinis Gray.

Chamaeleon affinis Gray, Proc. Zool. Soc. Lond., p. 95, 1863—Abyssinia
(Ethiopia).

Chamaeleon affinis Boulenger, Cat. Liz. Brit. Mus., 3, p. 461, pl. xxxix,
fig. 7, 1887.

1 (12726): Devark, Ethiopia (Osgood, 1927).

Chamaeleon namaquensis Smith.

Chamaeleo namaquensis Smith, S. Africa Quarterly Journ., No. 5, p. 17, 1831
—near mouth of Orange River, Little Namaqualand.

Chamaeleon namaquensis Boulenger, Cat. Liz. Brit. Mus., 3, p. 462, 1887.

1 (16001): Port Nolloth, Cape Province (Wecke, 1931).

Chamaeleon cristatus Stutchbury.

Chamaeleo cristatus Stutchbury, Trans. Linn. Soc. Lond., 17, p. 361, pl. x,
1837—Gaboon.

Chamaeleon cristatus Boulenger, Cat. Liz. Brit. Mus., 3, p. 471, 1887.

1 (17040): Batanga, Cameroon (University of Chicago, 1903).

Total length 212 (117+95) mm.

Chamaeleon jacksoni Boulenger.

Chamaeleon jacksoni Boulenger, Ann. Mag. Nat. Hist., (6), 17, p. 376, 1896—
Uganda (in error); Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 413, 1910.

Chamaeleon jacksoni var. *vaueresceae* Tornier, Zool. Jahrb. Syst., 19, p. 176,
1903—forest at 7,000 feet at Nairobi, Kenya Colony.

Chamaeleon jacksoni vaueresceae Loveridge, Bull. U. S. Nat. Mus., 151,
p. 90, 1929.

11 (2279, 2298, 2300, 2302-3, 2305-6): Lukenya Province,
Kenya Colony (Akeley, 1906).

As no other records of *jacksoni* had been recorded since the type, I suggested to Mr. H. W. Parker that Boulenger had given "Uganda" in its old vague sense, which extended to include Lake Naivasha. Mr. Parker replied that Uganda had been struck out in the register and British East Africa substituted in Mr. Boulenger's handwriting. As a result *vaueresceae* of Tornier must become a synonym, being almost topotypic of *jacksoni*.

Chamaeleon johnstoni Boulenger.

Chamaeleon johnstoni Boulenger, Proc. Zool. Soc. Lond., p. 136, pl. xiii, 1901—Mubuku Valley, Ruwenzori, Uganda.

1 (1843): Ruwenzori Mountains at 6,000 feet (British Museum).

5 (6982-6): Lake Kivu, Belgian Ruanda-Urundi (Heller, 1924).

6 (12783-8): Kisenji, Belgian Ruanda-Urundi (Heller, 1924).

This species is now known to be extremely variable and the races such as *graueri* cannot be recognized. In the above series for example there are a few individuals with enlarged conical plates on the sides but in the majority the sides are granular without strikingly enlarged plates.

Rhampholeon kerstenii robecchii Boulenger.

Rhampholeon robecchii Boulenger, Ann. Mus. Civ. Stor. Nat. Genova, (2), 12, p. 13, pl. i, fig. 3, 1892—Wuorandi, near Obbia, Italian Somaliland.

Rhampholeon mandera Meek, Field Mus., Zool. Ser., 1, p. 183, 1897—Mandera, British Somaliland.

1 (370): Mandera, British Somaliland (Akeley, 1896).

Meek's type is undoubtedly synonymous with Boulenger's *robecchii* which Parker has recently made a race of *kerstenii*.

Rhampholeon spectrum (Buchholz).

Chamaeleo spectrum Buchholz, Monatsb. Akad. Wiss. Berlin, p. 298, pl., figs. 5 and 6, 1874—Cameroon.

Rhampholeon spectrum Boulenger, Cat. Liz. Brit. Mus., 3, p. 476, 1887.

1(1848): Benito River, Spanish Guinea (British Museum).

PIPIDAE

Xenopus laevis victorianus Ahl.

Xenopus victorianus Ahl, Zool. Anz. Leipzig, 60, p. 270, 1924—Bussisi, i.e. Busisi, Lake Victoria, Tanganyika Territory.

Xenopus laevis victorianus Loveridge, Bull. Mus. Comp. Zool., 74, p. 351, 1933.

14 (12020-33): Bihunga Escarpment, Uganda (Heller, 1925).

These frogs, taken at 8,300 feet, have been compared with the material listed in the second citation and from which they appear to be indistinguishable though averaging smaller. In this respect they are intermediate between *victorianus* and *bunyoniensis*. They may be distinguished from the latter by their more acuminate snouts, the sides of their heads not being parallel, and, in the adults, the width of their bodies is greater than that of their heads, though this is not the case in the young which approximate to *bunyoniensis* in this respect. The lower surface is more or less immaculate in nine frogs, slightly mottled or marbled in five. The largest example (No. 12023) is a female greatly bloated with ova, taken December 2, 1925, and measuring 52 mm.

***Xenopus laevis bunyoniensis* Loveridge.**

Xenopus laevis bunyoniensis Loveridge, Proc. Biol. Soc. Wash., 45, p. 114, 1932—Lake Bunyoni, Kigezi District, Uganda.

99 (12177–12181): Lake Bunyoni, Uganda (Heller, 1925).

The above series are paratypes of this race and were fully discussed in the citation given. A key to the races is provided in the 1933 paper mentioned under *X. l. victorianus*.

BUFONIDAE

***Bufo regularis regularis* Reuss.**

Bufo regularis Reuss, Mus. Senckenberg, 1, p. 60, 1834—Egypt; Boulenger, Cat. Batr. Sal. Brit. Mus., p. 298, 1882; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 404, 1910.

Bufo garmani Meek, Field Mus., Zool. Ser., 1, p. 176, 1897—Halleh, British Somaliland.

2 (415–6): Halleh, British Somaliland (Akeley, 1896).

2 (2307, 2396): Athi Plains, Kenya Colony (Akeley, 1906).

1 (2416): Molo, Kenya Colony (Akeley, 1906).

1 (2417): Lukenya Hills, Kenya Colony (Akeley, 1906).

2 (2426–7): Lake Elmenteita, Kenya Colony (Akeley, 1906).

1 (12325): Matameras, Tanganyika Territory (Zimmer, 1926).

1 (12518): Ethiopia (Bailey, 1926).

1 (12520): Lake Shala, Arusi, Ethiopia (Osgood, 1927).

1 (12521): Mount Albasso, Ethiopia (Osgood, 1926).

2 (12530–1): Sheik Hussein, Bale, Ethiopia (Osgood, 1926).

5 (12701–5): 25 miles west of Lake Tana, Ethiopia (Osgood, 1927).

10 (12714–23): Addis Ababa, Ethiopia (Osgood, 1927).

1 (12725): Metemma, Ethiopia (Osgood, 1927).

3 (12798, 12800, 12803): Mambawanga Hill, Belgian Congo (Heller, 1925).

2 (12834-5): Ruchuru, Belgian Congo (Heller, 1925).

4 (12898-900, 12911): Kabengere, Luapula, Belgian Congo (Zimmer, 1926).

2 (13119-20): White Nile District, Uganda (Zimmer, 1926).

1 (15088): South of Bisan River, Ethiopia (Albrecht, 1929).

4 (15361-4): Cuma, Angola (Hambly, 1929).

These 46 toads agree in possessing a tarsal fold and all the key characters employed by Noble (1924, Bull. Amer. Mus. Nat. Hist., 49, pp. 167-168). In connection with the identification of this material, I have endeavored to ascertain what races of *regularis* may be recognized. Unfortunately there is very little topotypic material of the nominate form available and I have had to assume that East African toads are of the typical race. Sexing is based on the brown nuptial pad present on the first finger of the male. The head in males is usually more acuminate than in females.

B. r. regularis Reuss, 1834, *Egypt*. A topotypic female of 66 mm. and three young of 27-35 mm. give the following results: End of snout steep when viewed laterally; transverse diameter of tympanum one-half to two-thirds the orbital diameter; width of parotid 2 to $2\frac{1}{4}$ times its length; fingers moderate, their tips blunt; tibio-tarsal articulation of adpressed hind limb reaches axilla (in 2) or shoulder (in 2); tibia 2.4 to 2.8 times in length from snout to anus.

B. r. maculatus Hallowell 1854 being n.n. for *cinereus* Hallowell, 1844, preoccupied. *Liberia*. Eight males (45-56 mm.), ten females (48-75 mm.), and eight topotypic young (21-36 mm.) give the following results: End of snout steep when viewed laterally; transverse diameter of tympanum one-half to three-fourths times the orbital diameter; width of parotid two to three times in its length; fingers slender, tapering; the tibio-tarsal articulation of the adpressed hind limb reaches the axilla (in 10) or shoulder (in 16); tibia 2.2 to 2.6 times in the length from snout to anus. On comparing a topotype female *maculatus* with the topotype female *regularis* they were found to agree in dorsal tubercles, large tubercles on forearm, size of metatarsal tubercles, webbing of toes, etc., but could be separated on the rather more slender, certainly more tapering toes of *maculatus*.

Bufo garmani Meek, 1897, *Halleh, British Somaliland*. Both types juveniles, one at least an immature female. Despite their dried condition all the key characters of typical *regularis* may be detected.

With no other Somaliland material I examined the Ethiopian specimens listed above. These consisted of nine males (64–82 mm.), eleven females (55–96 mm.), and two young (35–40 mm.), which gave the following results: End of snout steep when viewed laterally; transverse diameter of tympanum one-half to two-thirds times the orbital diameter; width of parotid two to three times in its length; fingers thick, their tips blunt; the tibio-tarsal articulation of the adpressed hind limb reaches the axilla (in 13) or shoulder (in 2) far short of axilla (in No. 15088), the rest being too dried to ascertain; tibia 2.2 to 2.6 times in the length from snout to anus in both sexes.

The largest female (No. 12720) measures 98 mm., but this Ethiopian toad is only 8 mm. longer than specimens from Molo, Kenya Colony (No. 2416), and Cuma, Angola (No. 15363); the smallest toad in the series (No. 2307) only measures 12 mm. I conclude that there are no grounds on which Ethiopian frogs can be distinguished from the typical form, not even size, for Anderson records a male from Egypt as being 91 mm.

Bufo spinosus Bocage, 1867, *Benguela, Angola*. Preoccupied by *spinosus* Daudin, 1803. I failed to find any difference between the Angolan and Ethiopian frogs.* Spinosity is a secondary sexual character of the breeding male and evidently many of the Ethiopian series were collected when the males had assembled at the pools at Addis Ababa, for at first glance their strongly spinose backs (where small spines are arranged in rosettes upon the greatly swollen tubercles) give them a very distinctive appearance. When, however, one of these males is compared with a breeding male which I took *in coitu* in Tanganyika Territory, the distinction is less apparent and the slight differences between toads from these two countries could hardly be stated in words.

Bufo tuberculosus Bocage, 1896, *Linokana, Bechuanaland*, is preoccupied by *tuberculosus* Risso, 1826. However, *B. regularis gutturalis* Power, 1927, *Lobatsi, Bechuanaland*, appears to represent the same toad and Power has recorded *gutturalis* from Linokana. Now that he has found the slender-fingered *gutturalis* occurring in the same ponds or localities with the thicker-fingered *regularis* and breeding at the same time, either they must be specifically distinct or racially identical! Slender and stubby-fingered individuals occur in the same human family, so perhaps we shall find that this variability occurs within the limits of a species among toads. Though the Museum of Comparative Zoology possesses a paratype of *gutturalis* I hesitate to form a definite opinion as to its status.

Bufo lemairii Boulenger, 1901, was described from Pweto, Lake Mweru, Belgian Congo, and one would naturally expect Zimmer's specimens from Kabengere on the Luapula River, which flows out of Lake Mweru, to represent the same toad. I am indebted to Dr. Gaston de Witte for the opportunity to examine a pair of *Bufo lemairii*, a long-toed species with acuminate snout. I suggested to Dr. de Witte that Boulenger's holotype, said to be a female, was in reality a male. He confirms this opinion; nevertheless the female of this species has a more acuminate snout than the male.

Since the foregoing was written (1932) several other descriptions of races of *regularis* have appeared.

***Bufo regularis kisolensis* Loveridge.**

Bufo regularis kisolensis Loveridge, Proc. Biol. Soc. Wash., 45, p. 52, 1932—Kisolo, Kigezi District, Uganda.

43 (9885-9, 12005): Kisolo, Kigezi, Uganda (Heller, 1926).

10 (12006-15): Bihunga Escarpment, Uganda (Heller, 1926).

10 (12124-30, 12132-34): Sabinio Volcano, Uganda (Heller, 1926).

13 (12164-76): Lake Bunyoni, Kigezi, Uganda (Heller, 1925).

The Kisolo specimens constitute the type and paratypes of this race which is distinguished from all other forms of *regularis* by having the toes, except the fourth, webbed to their tips, occasionally only almost to their tips.

The Bihunga, Sabinio and Bunyoni toads are rather less webbed and may be regarded as intermediates between *kisolensis* and *regularis* but approaching the former. The data of the Bihunga and Sabinio specimens were collected. Twelve males (50-65 mm.), one female (53 mm.), and eight young (24-40 mm.) give the following results: End of snout sloping when viewed laterally; transverse diameter of tympanum one-half (in the smallest only) to two-thirds or three-fourths times the orbital diameter in adults; width of parotid two to three times in its length; fingers slender, pointed; the tibio-tarsal articulation of the adpressed hind limb reaches to the axilla (in 4) or shoulder (in 16); tibia 2.2 to 2.5 times in the length from snout to anus. One male (No. 12009) differs from the rest in the heavily mottled under parts.

***Bufo camerunensis camerunensis* Parker.**

Bufo camerunensis camerunensis Parker, Proc. Zool. Soc. Lond., p. 153, 1936—Oban, Calabar, Nigeria.

1 (3577): Abanga River, French Congo (Bates).

2 (3578, 3580): Bitye, Cameroon (Bates).

1 (12769): Mambawanga Hill, Belgian Congo (Heller, 1925).

Parker (l.c. supra) has recently shown that *polycerus* Werner is a synonym of *tuberosus* Günther and what has been universally regarded as *polycerus* is, in reality, an undescribed species for which he proposes the name *camerunensis*.

Superficially like *regularis* but differing in their strongly developed, rather spinose, temporal tubercles. I have considered the possibility of others in the Mambawanga Hill series being young of *camerunensis* for they are certainly somewhat intermediate as their temporal tubercles are more developed than is usual with *regularis*. The above series agree in possessing a well-developed tarsal fold and in having the fifth (outer) toe webbed to a point slightly in advance of the penultimate subarticular tubercle.

The largest of three females measures 75 mm., the smallest toad 16 mm.; both are from Bitye.

Bufo funereus Bocage.

Bufo funereus Bocage, Journ. Sci. Lisboa, 1, p. 77, 1866—Duque de Bragança; Boulenger, Cat. Batr. Sal. Brit. Mus., pp. 281 and 475, 1882.

1 (19892): Bitye, Cameroon (Bates).

3 (12227-9): Bambuni, Belgian Congo (Heller, 1925).

7 (12795, 12797, 12799, 12801-2, 12804-5): Mambawanga Hill, Belgian Congo (Heller, 1925).

Superficially like *regularis* but differing in the complete absence of a tarsal fold though its position may be indicated by a series of enlarged tubercles as in No. 12799; the outer (fifth) toe is webbed to the tip (six specimens) or almost to the tip (four specimens); the first finger is usually only slightly longer than the second, though occasionally it may be much longer (e.g. Nos. 12795, 12805). I find that this character fails to distinguish *funereus* from *tuberosus* which, however, may be known by its prominent ovate parotid, this gland being elongate in *funereus*.

The largest of ten females measures 61 mm.

Bufo tuberosus Günther.

Bufo tuberosus Günther, Cat. Batr. Sal. Brit. Mus., p. 60, pl. iii, fig. C, 1853—Fernando Po; Boulenger, Cat. Batr. Sal. Brit. Mus., p. 304, 1882.

Bufo polycerus Werner, Sitzber. Akad. Wiss., München, 27, p. 211, 1897—Cameroon.

2 (3585-6): Efulen, Cameroon (Bates).

The larger of these toads is a male measuring 41 mm.

Bufo gariepensis gariepensis Smith.

Bufo gariepensis Smith, Illus. Zool. S. Africa, 3, pl. lxix, figs. 2 and 2a, 1849—
Banks of the Orange River, Cape Colony.

1 (15548): Lady Frere, Cape Province (Romer, 1929).

This specimen has been compared with cotypes of *Bufo granti* Boulenger and other examples of *gariepensis* in the collection of the Museum of Comparative Zoology. The tarso-metatarsal articulation of the addressed hind limb reaches the tympanum in four of these and falls short in one; the tibio-tarsal articulation reaches the axilla in three and falls short in two, apparently irrespective of sex.

The Lady Frere female measures 73 mm.

Bufo superciliaris Boulenger.

Bufo superciliaris Boulenger, Proc. Zool. Soc. Lond., p. 565, 1887—Rio del Rey, Cameroon.

1 (12794): Mambawanga Hill, Belgian Congo (Heller, 1925).

This female measures 85 mm.

Bufo carens Smith.

Bufo carens Smith, Illus. Zool. S. Africa, 3, pl. xlvi, fig. 1, 1849—"Interior of South Africa"; Boulenger, Cat. Batr. Sal. Brit. Mus., p. 301 (part), 1882.

1 (10880): Bechuanaland (Basel Museum).

This female measures 70 mm.

Bufo blanfordii Boulenger.

Bufo blanfordii Boulenger, Cat. Batr. Sal. Brit. Mus., p. 301, pl. xix, fig. 4, 1882—Ain Sambar and Sooroo, Ethiopia.

Bufo viridis somalacus Meek, Field Mus., Zool. Ser., 1, p. 177, 1897—Halleh, British Somaliland.

6 (419-424): Halleh, British Somaliland (Akeley, 1896).

These toads, representing the type series of *somalacus* Meek, long considered a synonym of *blanfordii*, have now been compared with an example of *blanfordii* (M.C.Z. 15423) from Somaliland which was identified as such by Dr. G. A. Boulenger. These specimens have been adequately described by Meek who gives the measurements of each in inches. The type (No. 419), a juvenile male, is the largest of the series and measures 39 mm.

Bufo osgoodi Loveridge.

Bufo osgoodi Loveridge, Proc. Biol. Soc. Wash., 45, p. 47, 1932—Ethiopia.

1 (12529): Ethiopia (Osgood, 1926-27).

This is the female holotype of a recently described toad with hidden tympanum related to *Bufo lönnbergi* Andersson.

Nectophryne afra Buchholz and Peters.

Nectophryne afra Buchholz and Peters, Monatsber. Akad. Wiss. Berlin, p. 202, pl. ii, fig. 5, 1875—Cameroon; Boulenger, Cat. Batr. Sal. Brit. Mus., p. 279, 1882.

2 (3575-6): Bitye, Cameroon (Bates).

Though Bitye is the type locality of the closely related *N. batesii*, Boulenger, when describing the latter, figured both species from Bitye; this illustration makes it easy to distinguish them. The larger toad is gravid with a mass of ova and measures 22 mm.

RANIDAE

Scotobleps gabonicus Boulenger.

Scotobleps gabonicus Boulenger, Proc. Zool. Soc. Lond., p. 439, pl. xxviii, fig. 1, 1900—Benito River, French Congo; Parker, Proc. Zool. Soc. Lond., p. 141, 1936.

Astylosternus oxyrhynchus Niedep, Zool. Anz., 32, p. 660, 1908—Lolodorf, Cameroon.

Astylosternus gabonicus Parker, Ann. Mag. Nat. Hist., (10), 7, pp. 493-495, 1931.

2 (3626-7): Efulen, Cameroon (Bates).

Interorbital space half as wide as an upper eyelid; tympanum half the orbital diameter; toes webbed to the base of the terminal phalanx on the third and fifth toes, to the second phalanx on the fourth toe. The larger frog measures 51 mm.

Parker (1936) no longer considers *Scotobleps* synonymous with *Astylosternus*. These specimens, identified as *gabonicus* by Boulenger, do not differ in any important detail from *oxyrhynchus* which Nieden correctly referred to the genus *Astylosternus*. Of *oxyrhynchus* it is stated that the interorbital space is only a third the width of an upper eyelid but this is a character which is subject to variation depending largely on muscular contraction at the time of death.

Scotobleps camerunensis Ahl from Bipindi, Cameroon, may possibly be found to be synonymous also. Its chief claim to distinction lies in the length of the tibia which the author affirms is contained from two and a quarter to two and a third times in the length from snout to anus, in *gabonicus* about one and three-quarter times. This difference is reflected when the tibio-tarsal articulation of the adpressed hind limb marks the middle of the eye in *camerunensis*,

the nostril, or between the eye and the nostril, in *gabonicus* from the Cameroon and Gaboon.

Trichobatrachus robustus Boulenger.

Trichobatrachus robustus Boulenger, Proc. Zool. Soc. Lond., p. 443, pl. xxx, 1900—Benito River, Spanish Guinea; Parker, Ann. Mag. Nat. Hist., (10), 7, pp. 493–495, 1931; Parker, Proc. Zool. Soc. Lond., p. 141, 1936.

1 (14825): Lolodorf, Cameroon (Cozzens, 1928).

2 (15976–7): Cameroon (Cozzens, 1928).

The interorbital space is equal to an upper eyelid in the two males, once and a half times as wide in the female; in a score of Cameroon specimens in the Museum of Comparative Zoology an even greater range is shown in males, being from half the width (M.C.Z. 3383, 8821) to much broader (M.C.Z. 2612); the tympanum, sometimes barely distinguishable, agrees with the type in being half the diameter of the eye and I cannot but think it was accidental for Parker (1931)¹ to place *robustus* in his group (1) in which the tympanum is two-thirds the eye diameter; the horizontal diameter is always half, or less than half, the vertical is occasionally two-thirds. Nor has *robustus* a rudiment of web like the members of group (1); in the twenty-three specimens before me it is webbed like *gabonicus*, i.e. to the base of the terminal phalanx on the third and fifth toes, to the second phalanx on the fourth toe. An extraordinary variation in the size of the tongue is to be noted in the male specimens in Field Museum, showing how little value should be placed on this character. The variation is as follows:

The 130 mm. male has a tongue 19 mm. long and 21 mm. broad.

The 114 mm. male has a tongue 26 mm. long and 27 mm. broad.

The 115 mm. male (M.C.Z. 3373) has a tongue 25 mm. long and 19 mm. broad.

The larger male measures 130 mm., the female 98 mm.; none of the long series in the Museum of Comparative Zoology surpasses these measurements.

Astylosternus diadematus Werner.

Astylosternus diadematus Werner, Verh. Zool.-Bot. Ges. Wien, 48, p. 200, figs., 1898—Victoria, Cameroon; Parker, Ann. Mag. Nat. Hist., (10), 7, pp. 493–495, 1931.

Gampsosteonyx batesii Boulenger, Proc. Zool. Soc. Lond., p. 442, pl. xxix, 1900—Benito River, Spanish Guinea.

2 (3630–1): Efulen, Cameroon (Bates).

¹ Mr. Parker has since informed me that it was a slip.

The interorbital space equals an upper eyelid; tympanum two-thirds the orbital diameter; toes webbed at base only. The larger frog measures 52 mm.

Parker (1931), after amending the original description, remarks of the type of *Gampsosteonyx* that on osteological grounds it is generically indistinguishable from *Astylosternus* and adds, in a footnote, that probably *diadematus* and *batesii* are conspecific.

After a careful perusal of the two descriptions, I find that the only characters which apparently conflict are as follows:

<i>diadematus</i>	<i>batesii</i>
Tongue deeply emarginate	Tongue feebly notched behind
Outer metatarsals separated	Outer metatarsals bound together

The first of these, as shown by all the material at my disposal, is variable, dependent on the state of preservation, and Werner remarks that his single specimen was poorly preserved. If the second meant separated by web, a phrase often employed, the last apparent reason for keeping the two as distinct species is removed. In view of the closeness of markings and other characters as shown by the figures of the types I have no hesitation in considering *batesii* a synonym of *diadematus*.

Since the foregoing was written Parker (1936, Proc. Zool. Soc. Lond., p. 142) has synonymized *batesii* and *Dilobates platycephalus* Boulenger with *diadematus*.

Rana goliath Boulenger.

Rana goliath Boulenger, Ann. Mag. Nat. Hist., (7), 17, p. 317, 1906—Efulen, Cameroon.

3 (14822-4): Lolodorf, Cameroon (Cozzens, 1928).

2 (15978-9): Cameroon (Cozzens, 1928).

It has been proposed to separate *goliath* from other members of the genus *Rana* under the name of *Gigantorana* (fide Noble, Biology of the Amphibia, p. 519, 1931), characterized by epicoracoids which are only weakly calcified. In March, 1931, Scortecci (Atti. Soc. ital. Milano, 20, p. 17), separated *beccari*, *crassipes*, *goliath*, and *perpalmata* under the name of *Paleorana*. Any grouping which would separate *goliath* from *crassipes* would seem to be unnatural and unjustifiable. See Parker (1936, Proc. Zool. Soc. Lond., p. 137) for a more recent discussion of the position.

The tibio-tarsal articulation of the adpressed hind limb reaches the end of the snout in all except the largest frog (No. 14823) where it only reaches the eye, in this respect approaching *crassipes* where it

reaches from the tympanum to the eye. So closely allied are these two species that one wonders if juvenile *goliath* may not be sometimes misidentified as *crassipes*; the latter, however, breeds at a length of 65 mm.

The largest specimen measures 207 mm.

***Rana crassipes* Buchholz and Peters.**

Rana crassipes Buchholz and Peters, Monatsber. Akad. Wiss. Berlin, p. 201, 1875—Abo, Cameroon.

2 (3589-90): Efulen, Cameroon (Bates).

The larger frog measures 45 mm.

***Rana subsigillata* Duméril.**

Rana subsigillata Duméril, Rev. Mag. Zool., p. 560, 1856—Gaboon; Boulenger, Cat. Batr. Sal. Brit. Mus., p. 23, 1882.

1 (3591): Ja River, Cameroon (Bates).

1 (3592): Abanga River, Gaboon (Bates).

Both are very young examples but display the vermiculations on the lower surface. They have three, not two, horny prominences on the front of the lower jaw.

The larger frog measures 30 mm.

***Rana occipitalis* Günther.**

Rana occipitalis Günther, Cat. Batr. Sal. Brit. Mus., p. 130, pl. xi, 1858—"West Africa," "Africa," Gambia; Boulenger, Cat. Batr. Sal. Brit. Mus., p. 27, 1882.

1 (3594): Agberi, southern Nigeria.

A young male measuring 87 mm. A tadpole also bears the same registration number but I have not attempted to identify it.

***Rana delalandii delalandii* (Duméril and Bibron).**

Pyxicephalus delalandii Duméril and Bibron, Erpét. Gén., 8, p. 445, pl. lxxxvii, figs. 1, 1a, and 1b, 1841—South Africa.

Rana delalandii Boulenger, Cat. Batr. Sal. Brit. Mus., p. 31, 1882.

"*Rana delandi* (Günther)" (sic) Meek, Field Mus., Zool. Ser., 1, p. 175, 1897.

Rana (Tomopterna) hieroglyphica Ahl, Sitzber. Ges. naturf. Freunde Berlin, p. 42, 1927 (1925)—So-Omadu, Somaliland.

Rana (Pyxicephalus) delalandii Parker, Proc. Zool. Soc. Lond., p. 365, 1932.

1 (414): Hulleh, British Somaliland (Akeley, 1896).

1 (12534): Sheik Hussein, Ethiopia (Osgood, 1926).

2 (15089-90): South of Bisan River, Ethiopia (Albrecht, 1929).

Parker (Proc. Zool. Soc. Lond., p. 365, 1932) with sixty Somali specimens relegates *hieroglyphica* Ahl to the synonymy; an action which I endorse after examination of a paratype of *hieroglyphica* (M.C.Z. 17539).

The tibio-tarsal articulation of the adpressed hind limb reaches the eye in three of the above specimens, and to the shoulder only in an adult female (No. 12534) which is bloated with ova. This female is the largest frog and measures 47 mm. from tip of snout to vent.

One of the specimens from the Great Karas Mountains, Namaqualand, referred to *delalandii* by Methuen and Hewitt (Ann. Transvaal Mus., 4, p. 124, 1914) is now in the collection of the Museum of Comparative Zoology and agrees well with a cotype of the Angolan *cryptotis* (M.C.Z. 19268) rather than with the typical form. I believe that this form is to be recognized as a distinct subspecies, *Rana delalandii cryptotis* Boulenger.

Ahl (Sitzber. Ges. naturf. Freunde Berlin, p. 44, 1927) fails to state in what way *signata* and *cacondana* differ from *delalandii* and a careful perusal of his descriptions reveals nothing which would justify their recognition as other than synonyms of *cryptotis* or intermediates between it and the typical form from which they differ in their indistinct tympana. They are said to lack the tarsal tubercle which was said to characterize *cryptotis* but an examination of a long series of the typical form shows that this may be present or absent as is the case also with the small outer, conical metatarsal tubercle.

***Rana fuscigula angolensis* Bocage.**

Rana angolensis Bocage, Journ. Sci. Lisboa, 1, p. 73, 1866—Duque de Bragança, Angola; Boulenger, Cat. Batr. Sal. Brit. Mus., p. 50, 1882.

Rana nutti Boulenger, Ann. Mag. Nat. Hist., (8), 18, p. 467, 1896—Lake Tanganyika.

Rana fuscigula angolensis Loveridge, Bull. Mus. Comp. Zool., 74, p. 362, 1933. 1 (3595): Benguela, Angola (Ansorge).

58 (12112–21): Bihunga Escarpment, Uganda (Heller, 1925).

62 (12191–2): Lake Bunyoni, Uganda (Heller, 1925).

8 (12195–202): Kalongi, Belgian Congo (Heller, 1925).

14 (12210–23): Ibala, Belgian Congo (Heller, 1925).

The reasons for considering *R. nutti* Boulenger a synonym of *angolensis*, together with a key to the races of *fuscigula*, are given

in the citation above. It might be remarked, however, that the Lake Bunyoni specimens are intermediate between *R. f. angolensis* and *R. f. chapini* in that the webbing of the fifth toe extends part way up the last phalanx.

The largest male measures 59 mm., and largest female 74 mm., both from Kigezi District; those from Bunyoni are but a millimeter or two smaller.

Rana cooperi Parker.

Rana (Ptychadaena) cooperi Parker, Proc. Zool. Soc. Lond., p. 2, 1930—Wouramboulchi, Ethiopia.

1 (12516): Allata, Ethiopia (Osgood, 1926).

This frog has been compared with a paratype of *Rana cooperi* (M.C.Z. 16251) and, though the latter is much smaller, they appear to be specifically identical despite the fact that the Allata specimen possesses vomerine teeth. It will be recalled, however, that Parker's largest paratype, a 52 mm. female, possessed a vomerine tooth on one side only and that in the introduction to his paper Parker presents a very valuable discussion on the absence of vomerine teeth in Ethiopian frogs. It may transpire that *cooperi* should be regarded as a race of *fuscigula* nearest to *angolensis*.

The Field Museum female measures 57 mm.

Rana aequiplicata Werner.

Rana mascareniensis var. *aequiplicata* Werner, Verh. Zool.-Bot. Ges. Wien, 48, p. 192, 1898—Victoria and Buea, Cameroon.

1 (3579): Efulen, Cameroon (Bates).

Compared with specimens in the Museum of Comparative Zoology from Efulen, Cameroon, and Benito River, Spanish Guinea. From these it differs only in that each digit terminates in a sharp bony claw (somewhat different from that of *Gampsosteonyx*=*Astylosternus*); these claws presumably penetrate the tissues at the breeding season. Total length 44 mm.

Rana oxyrhynchus Smith.

Rana oxyrhynchus A. Smith, Illus. Zool. S. Africa, 3, pl. lxxvii, figs. 2 and 2a-c, 1849—Kafirland and region of Port Natal; Boulenger, Cat. Batr. Sal. Brit. Mus., p. 51, 1882.

Phrynobatrachus hailensis Meek, Field Mus., Zool. Ser., 1, p. 175, 1897—Halleh, British Somaliland.

Ptychadena aberae Ahl, Sitzber. Ges. naturf. Freunde Berlin, p. 97, 1923—Abera, near Jamdjam (Sidamo), southwest Ethiopia.

Rana mascariensis (part) Meek (not of Duméril and Bibron), Field Mus. Nat. Hist., Zool. Ser., 10, p. 403, 1910.

- 2 (417-8): Halleh, British Somaliland (Akeley, 1896).
- 3 (2397, 2411, 2415): Nairobi, Kenya Colony (Akeley, 1906).
- 1 (2418): Athi River, Kenya Colony (Akeley, 1906).
- 6 (12245, 12247-8, 12262, 12269, 12272): Lake Manka, Tanganyika Territory (Zimmer, 1926).
- 2 (12532-3): Sheik Hussein, Ethiopia (Osgood, 1926).
- 1 (12724): Addis Ababa, Ethiopia (Osgood, 1926).
- 1 (12736): Gendoa River, Dembea, Ethiopia (Osgood, 1927).
- 2 (12867-8): Katobwe, Belgian Congo (Zimmer, 1926).
- 3 (18375-7): Bambuni, Belgian Congo (Heller, 1925).

In 1898 Boulenger (Ann. Mus. Civ. Stor. Nat. Genova, 18 (38), p. 4) referred *Phrynobatrachus hailensis* Meek to the synonymy of *Rana mascareniensis*. An examination of the types (Nos. 417-8) makes it necessary for me to correct this. Meek was in error in stating that vomerine teeth were absent, for they are present but scarcely discernible as both his specimens were young males. It is curious that he omitted any mention of their sublingual vocal slits and black pouches. The habits, as described by Elliot, are typically those of *oxyrhynchus* and not of a *Phrynobatrachus*.

Ahl's description of *aberae* agrees with the Ethiopian material, and Transvaal *oxyrhynchus*, except that Ahl states that the femur is longer than the foot. Such a proportion would be so unusual that I venture to suggest that the opposite was intended.

The largest male (Katobwe) measures 43 mm. and the largest females (from Sheik Hussein and Bambuni) measure 51 and 52 mm. respectively.

***Rana mascareniensis mascareniensis* Duméril and Bibron.**

Rana mascareniensis Duméril and Bibron, Erpét. Gén., 8, p. 350, 1841—Madagascar, Mauritius, Seychelles; Boulenger, Cat. Batr. Sal. Brit. Mus., pp. 52, 460, 1882.

- Rana mascariensis* (sic) Meek (part), Field Mus. Nat. Hist., Zool. Ser., p. 403, 1910.
- 1 (2425): Nairobi, Kenya Colony (Akeley, 1906).
- 4 (12001-4): Kisolo, Uganda (Heller, 1926).
- 10 (12244, 12246, 12263-8, 12270-1): Lake Manka, Tanganyika Territory (Zimmer, 1926).
- 5 (15091-5): Gatelo, Ethiopia (Albrecht, 1929).

The series have been compared with a cotype of the species (M.C.Z. 1044) from Madagascar. There are four adult males and sixteen females and young. The first finger is equal to, or a trifle shorter than, the second; in none longer (all hands examined). Three joints of the fifth toe, and two and a half or three joints of the fourth toe, webbed, leaving one phalanx of the fifth, and two of the fourth, free of web. The tibio-tarsal articulation of the adpressed hind limb reaches to the nostril in males and some young, to the eye or just beyond the end of the snout in females; this wide range may be observed in females from Lake Manka alone. The largest male measures 39 mm., and female (Nairobi) 53 mm.

Rana mascareniensis uzungwensis Loveridge.

Rana mascareniensis uzungwensis Loveridge, Bull. Mus. Comp. Zool., 72, p. 384, 1932—Dabaga, Uzungwe Mountains, Tanganyika Territory.

1 (12515): Kitete, Tanganyika Territory (Zimmer, 1926).

This identification is somewhat tentative. On comparison with the type of *uzungwensis* (M.C.Z. 16626) the Kitete frog is found to be still more divergent from the typical form of *mascareniensis* in the webbing of the fifth toe for it has only two joints webbed and two free. All the other toes are webbed like those of *uzungwensis*, which differs from the typical form in having only the two basal joints of the fourth toe webbed and three joints free. The first finger equals the second. The tibio-tarsal joint of the adpressed hind limb marks the nostril. Female measures 39 mm. The Kitete, from which this frog came, is near Mahenge and little more than fifty miles southeast of the type locality of *uzungwensis*.

Rana mascareniensis subsp. indet.

1 (12519): Awadi River, Arusi, Ethiopia (Osgood, 1927).

1 (12706): 25 miles west of Lake Tana, Ethiopia (Osgood, 1927).

These frogs may be distinguished from the typical form by the less extensive webbing on their toes; this is best expressed as follows:

First toe has $1\frac{3}{4}$ phalanges free and $1\frac{1}{4}$ phalanges webbed.

Second toe has $1\frac{1}{2}$ phalanges free and $1\frac{1}{2}$ phalanges webbed.

Third toe has 2 phalanges free and 2 phalanges webbed.

Fourth toe has 3 phalanges free and 2 phalanges webbed.

Fifth toe has 2 phalanges free and 2 phalanges webbed.

It will be seen, therefore, that they are very close to *venusta* (see below) which was described from Mongalla. They differ almost enough to be regarded as subspecifically distinct, and perhaps the name *abyssinica* Peters, 1881 from Ailet near Massawa, Eritrea, or *nilotica* Sentzen, might be applicable. They do not represent *schillukorum* nor *gondokorensis* Werner; nor either *neumanni* or *erlangeri* Ahl, described from this region.

The first finger is equal to, or slightly shorter than, the second; the tibio-tarsal articulation of the adressed hind limb reaches well beyond the end of the snout in the adult, to the nostril in the young one from west of Lake Tana. Back of the thighs marbled. The adult female measures 52 mm.

***Rana mascareniensis venusta* Werner.**

Rana venusta Werner, Sitzber. Akad. Wiss. Wien, 116, part 1, pp. 1889 and 1892, pl. iv, fig. 11, 1907—Entebbe, Uganda, Mongalla, and Lagos.

19 (12232): Bambuni, Belgian Congo (Heller, 1925).

1 (12747): Kalongi, Belgian Congo (Heller, 1925).

1 (12748): Bugongo Ridge, Belgian Congo (Heller, 1925).

1 (12759-60): Beni, Belgian Congo (Heller, 1925).

1 (12793): Mambawanga Hill, Belgian Congo (Heller, 1925).

These have been compared with topotypes of the race from Entebbe, Uganda. The form may be distinguished from other races of *mascareniensis* by its larger size and by the webbing of the toes; the character of the toes of the specimens listed, after an examination of every individual, may be stated thus:

First toe has $1\frac{1}{2}$ (or 1) phalanges free and $1\frac{1}{2}$ (or 2) phalanges webbed.

Second toe has 1 phalanx free and 2 phalanges webbed.

Third toe has 2 (or 1) phalanges free and 2 (or 3) phalanges webbed.

Fourth toe has 3 (or 2) phalanges free and 2 (or 3) phalanges webbed.

Fifth toe has 1 phalanx free and 3 phalanges webbed.

The first finger is equal to, or slightly shorter than, the second; the tibio-tarsal articulation of the adressed hind limb reaches from the nostril to well beyond the tip of the snout in both sexes; the inter-orbital space is equal to, or larger or smaller than, an upper eyelid, in several specimens two of these conditions may be noted on one individual, showing its uselessness for diagnostic purposes. Back of

the thighs with a clear, regular or irregular line as in the type in all except two young (12747-8). Largest of five males measures 50 mm., of seventeen females 63 mm.

Rana ansorgii Boulenger.

Rana ansorgii Boulenger, Ann. Mag. Nat. Hist., (7), 16, p. 107, pl. iv, fig. 1, 1905—between Benguela and Bihé, Angola.

1 (3596): Benguela, Angola (Ansorge).

This specimen was received from London identified as *angolensis*. I have compared it with a series of *ansorgii* from Tanganyika Territory (M.C.Z. 16676-85) some of which have been compared with the type. This frog agrees in having only two phalanges of the fifth (outer) toe webbed. Total length 35 mm.

Rana galamensis bravana (Peters).

Limnodytes bravanus Peters, Sitzber. Ges. naturf. Freunde Berlin, p. 3, 1882—Barawa, i.e. Brava, Italian Somaliland.

Rana magretti Scortecci, Atti. Soc. ital. Milano, 68, p. 182, pl. ix, figs. 1-3, 1929—Ghinda, Italian Somaliland.

Rana fiechleri Scortecci, Atti. Soc. ital. Milano, 68, p. 248, pl. xii, figs. 2-4, 1930—Villaggio Duca degli Abruzzi, Italian Somaliland.

Rana somalica Scortecci, Atti. Soc. ital. Milano, 69, p. 320, 1931—Villaggio Duca degli Abruzzi, Italian Somaliland.

12 (12853-6, 12858-9, 12861-6): Katobwe, Belgian Congo (Zimmer, 1926).

The vomerine teeth are between, and continued slightly behind, the level of the choanae; the tibio-tarsal articulation of the adpressed hind limb marks the tympanum in all males and females excepting three (1 male, 2 females) where it reaches the hinder part of the eye. The largest male measures 62 mm., the largest female 86 mm., being matched by one of the same size from Zanzibar.

In 1933, I (Bull. Mus. Comp. Zool., 74, p. 366) remarked that the contention as to whether *Limnodytes bravanus* was distinct from *galamensis* Dum. and Bib. from Galam Lakes, Senegal, could not be settled until Senegal material was available. Since that time Field Museum has received three specimens of the typical form from F. C. Wonder, who collected them from Kedougou, Senegal, and Bamako, French Sudan, in 1934. Mr. Schmidt invited my attention to them and as a result of examining this material I am quite satisfied that the eastern form represents a recognizable race.

I consider that the Katobwe series should be referred to this eastern race though these frogs differ somewhat in the marking on

the posterior aspect of the thighs from both the eastern and the typical form. No structural difference could be found to warrant their separation. The Museum of Comparative Zoology has examples of this eastern form from Bukoba, west of Lake Victoria, and all up the east coast from Zanzibar to Lamu.

In this connection it might be remarked that my friend Dr. G. Scortecci apparently overlooked the description of *bravana* when compiling his list of the amphibia of Italian Somaliland. This resulted in the describing of *fiechteri* and *somalica*, which appear to be inseparable from *bravana*. *R. fiechteri* was based on a 50 mm. frog said to be a male, a point worth checking before the acceptance of my conclusion. *R. somalica* was based on an undoubted male of 63 mm. with characteristic vocal sacs, also two young of 37 and 27 mm. respectively.

Rana albolabris Hallowell.

Rana albolabris Hallowell, Proc. Acad. Nat. Sci. Phila., 8, p. 153, 1856—West Africa; Boulenger, Cat. Batr. Sal. Brit. Mus., p. 59, pl. v, figs. 2 and 2a-b, 1882.

1 (3587): Uganda (Simon).

1 (3588): Efulen, Cameroon (Bates).

The larger specimen measures 43 mm.

Petropedetes newtonii (Bocage).

Tympanoceros newtonii Bocage, Journ. Sci. Lisboa, (2), 3, p. 270, 1895—Fernando Po; idem, 4, p. 18, pl., 1895.

Petropedetes newtoni Boulenger, Proc. Zool. Soc. Lond., p. 439, 1900.

2 (3628-9): Akok near Kribi, Cameroon (Bates).

These two young males, whose tympana are more than half the orbital diameter, have been compared with the series in the Museum of Comparative Zoology. The latter are from five localities, including Akok. Both frogs measure 34 mm.

Phrynobatrachus natalensis (Smith).

Stenorhynchus natalensis A. Smith, Illus. Zool. S. Africa, 3, Appendix, p. 24, 1849—Port Natal (i.e. Durban, Natal).

Phrynobatrachus natalensis Boulenger, Cat. Batr. Sal. Brit. Mus., p. 112, 1882; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 403, 1910.

1 (2414): Nairobi, Kenya Colony (Akeley, 1906).

2 (2421-2): Lukenya, Kenya Colony (Akeley, 1906).

1 (12761): Beni, Belgian Congo (Heller, 1925).

The Nairobi frog has dried up and is unidentifiable. As, however, *natalensis* is common at Nairobi I accept Meek's identification. Though Meek speaks of only one frog from Lukenya, there are two juveniles similar in appearance to *acridoides* but the latter has more webbing; on these frogs two phalanges of the fifth, and two and a half to three of the fourth, toe are free of web. The Beni frog measures 33 mm.

Phrynobatrachus graueri (Nieden).

Arthroleptis graueri Nieden, Sitzber. Ges. naturf. Freunde Berlin, p. 411, 1910—Rugege Forest, Belgian Ruanda-Urundi.

Phrynobatrachus graueri Nieden, Wiss. Ergebn. Deutsch.-Zentr.-Afrika Exped., 4, p. 174, pl. v, figs. 2a-b, 1912.

61 (12034-94): Bihunga Escarpment, Uganda (Heller, 1925).

61 (12122, 12162-3): Sabinio Volcano, Uganda (Heller, 1925).

1 (12224): Ibala, Ruwenzori, Belgian Congo (Heller, 1925).

Disk and one, or one and a half, phalanges of the fifth toe free, disk and two phalanges of the fourth toe free of web, the third phalanx of the fourth webbed only as a narrow fringe. The males are much smaller and darker than the fawn-hued females. Most of the Sabinio series are juvenile but some females of 25 mm. are bloated with eggs (circa 25. xii. 1925). These have been in water apparently, for the skin is much smoother and the characteristic dorsal plicae are scarcely noticeable, though present. The largest female (Ibala) measures 27 mm.

Phrynobatrachus dendrobates (Boulenger).

Arthroleptis dendrobates Boulenger, Rev. Zool. Africaine, 7, p. 8, 1919—Medje, Belgian Congo.

Phrynobatrachus versicolor Ahl, Zool. Anz., 61, p. 100, 1924—Rugege Forest, Belgian Ruanda-Urundi.

Phrynobatrachus petropedetoides Ahl, Zool. Anz., 61, p. 102, 1924—Ruwenzori and west of Lake Edward, Belgian Congo.

4 (12016-9): Bihunga Escarpment, Uganda (Heller, 1925).

81 (12141-61): Sabinio Volcano, Uganda (Heller, 1925).

3 (12187, 12189-90): Lake Bunyoni, Uganda (Heller, 1925).

75 (12208, 12226): Mount Ruwenzori, Belgian Congo (Heller, 1925).

1 (12225): Ibala, Mount Ruwenzori, Belgian Congo (Heller, 1925).

These specimens have been compared with topotypes of *dendrobates* and cotypes of *versicolor* and *petropedetoides* (M.C.Z. 17532-3 and 17534-5 respectively) and I fail to find any characters by which they may be distinguished.

Disk and one phalanx of the fifth toe, disk and one phalanx of the fourth toe free of web, the third phalanx of the fourth toe only webbed as a narrow fringe; tibia contained one and three-quarter times to twice in the length from snout to anus. Two very pronounced color types are present, some frogs having a white upper lip, others with the lip marbled with darker. Such coloring is independent of sex. The largest frog measures 38 mm.

Phrynobatrachus plicatus (Günther).

Hyperolius plicatus Günther, Cat. Batr. Sal. Brit. Mus., p. 88, pl. vii, fig. C, 1858—coast of Guinea.

Phrynobatrachus plicatus Boulenger, Cat. Batr. Sal. Brit. Mus., p. 112, 1882. 1 (3647): Ngama, Ogowe River, French Congo (Ansorge).

1 (3648): Akok, near Kribi, Cameroon (Bates).

No phalanx of the fifth toe (being strongly webbed to the disk) and only the disk and one phalanx of the fourth toe free of web. The young Akok frog is rather dried and at first glance appears to have two phalanges of the fourth toe free. These specimens have been compared with the extensive series in the Museum of Comparative Zoology, one of which (M.C.Z. 2753) from Kribi agrees closely with the figure of *auritus* Boulenger, which is believed to be a synonym. The larger frog measures 33 mm.

Phrynobatrachus acridoides (Cope).

Stauroids acridoides Cope, Journ. Acad. Nat. Sci. Phila., 6, p. 198, 1867—Zanzibar.

Phrynobatrachus acridoides Boulenger, Cat. Batr. Sal. Brit. Mus., p. 113, 1882. 22 (9999): No locality (Zimmer, 1926).

Disk and one phalanx of the fifth toe, disk and two phalanges of the fourth toe free of web. The largest frog measures 18 mm. compared with the types (M.C.Z. 15026-32).

Arthroleptis variabilis Matschie.

Arthroleptis variabilis Matschie, Sitzber. Ges. naturf. Freunde Berlin, p. 173, 1893—Buea and Barombi, Cameroon.

2 (3634): Bitye, Ja River, Cameroon (Bates).

Compared with specimens from Kribi and Lolodorf, Cameroon, in the collection of the Museum of Comparative Zoology. The tibio-tarsal articulation of the adpressed hind limb reaches the nostril in the male, nostril or eye in four females. Length of male 31 mm., of female 36 mm.

Arthroleptis poecilonotus Peters.

Arthroleptis poecilonotus Peters, Monatsber. Akad. Wiss. Berlin, p. 446, 1863
—Boutry, Ashanti, Gold Coast.

2 (3611-2): Kribi, Cameroon (Bates).

2 (3632-3): Efulen, Cameroon (Bates).

These specimens were originally identified by Boulenger and I believe are correctly determined, though No. 3632 has a metatarsal tubercle as long as the inner toe which has long been regarded as a key character distinguishing *variabilis* from *poecilonotus*; in the other three the metatarsal tubercle is quite definitely shorter than the inner toe. All are of small size, the largest only measuring 25 mm.

Arthroleptis minutus Boulenger.

Arthroleptis minutus Boulenger, Proc. Zool. Soc. Lond., p. 539, pl. xxx, fig. 4,
1895—Durro, western Somaliland, i.e. Ethiopia; Meek, Field Mus. Nat.
Hist., Zool. Ser., 7, p. 403, 1910.

1 (6533): Nairobi, Kenya Colony (Akeley, 1906).

This 18 mm. frog is now so macerated that it is of little taxonomic value.

Boulenger refers his readers to Dr. Donaldson Smith's map (Geographical Journal, 5, p. 125, 1895) for information as to localities. There we find no reference to Durro, but to the Darro Mountains located about 7° 15' N., 41° 10' E.; in the fine Atlante Internazionale Del Tourny Club Italiano, 1929, however, the Darro Mountains are shown as 8° 6' N., 40° 40' E., occupying much the position of the Hedabo Mountains on other maps.

Arthroleptis ogoensis Boulenger.

Arthroleptis ogoensis Boulenger, Ann. Mus. Stor. Nat. Genova, (3), 2, p. 162
pl. i, figs. 7-8, 1906 (1905)—Lambarene, Ogowe, French Congo.

2 (3610): Gaboon, French Congo (Ansorge).

These frogs, identified by Boulenger, are apparently a pair. The inner metatarsal tubercle would appear to be as far from the outer as it is from the tarsal. Both male (black throat) and female (flecked throat) measure 14 mm.

Arthroleptis rouxi Nieden.

Arthroleptis rouxi Nieden, Wiss. Ergebn. Deutsch. Zentr.-Afrika-Exped., 4,
p. 178, pl. v, figs. 5a-b, 1912—Budu Forest, Uganda.

1 (12123): Sabinio Volcano, Uganda (Heller, 1925).

1 (12188): Lake Bunyoni, Uganda (Heller, 1925).

2 (12230-1): Bambuni, Belgian Congo (Heller, 1925).

I believe that these frogs, all from the central lake region, represent *rouxi* which, in 1928, I incorrectly assigned to the synonymy of *ogoensis*, though there appears to be little to separate them except the black throat of the *ogoensis* males. In these four frogs the inner metatarsal tubercle is as far from the outer as it is from the tarsal (12123, 12188) or nearer the outer than it is to the tarsal (12230-1) though the holotype of *rouxi* was supposed to be distinguished from *ogoensis* by the distance between the two metatarsal tubercles being greater than the distance between the inner and tarsal tubercles. It might be remarked also that the snout, measured from the anterior border of the eye, is longer than the orbit and the interorbital space is equal to an upper eyelid in the Bambuni frogs, greater than an upper eyelid in the Sabinio and Bunyoni specimens. The larger male, which measures 18 mm., and female, measuring 21 mm., are both from Bambuni.

Hemisus marmoratum marmoratum (Peters).

Engystoma marmoratum Peters, Arch. Naturg., 21, p. 58, 1855—Cabaçeira, Mozambique.

Hemisus marmorata Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 404, 1910.

1 (2419): Lukenya, Kenya Colony (Akeley, 1906).

Total length 29 mm. as given by Meek.

POLYPEDATIDAE

Chiromantis rufescens (Günther).

Polypedates rufescens Günther, Proc. Zool. Soc. Lond., p. 486, 1868—"West Africa."

Chiromantis rufescens Boulenger, Cat. Batr. Sal. Brit. Mus., p. 92, pl. x, fig. 2, 1882.

2 (3645-6): Bitye, Cameroon (Bates).

The larger frog measures 65 mm.

Leptopelis bocagii (Günther).

Cystignathus bocagii Günther, Proc. Zool. Soc. Lond., p. 481, pl. xxxiii, fig. 2, 1864—Duque de Bragança, Angola.

Hylambates bocagii Boulenger, Cat. Batr. Sal. Brit. Mus., p. 133, figs., 1882.

Hylambates bocagei (sic) Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 404, 1910.

1 (2424): Lukenya, Kenya Colony (Akeley, 1906).

This frog measures 34 (not 37) mm.

Leptopelis brevirostris (Werner).

Hylambates brevirostris Werner, Verh. Zool.-Bot. Ges. Wien, 48, p. 199, pl. ii, figs. 5 and 6, 1898—Victoria, Cameroon.

2 (3641-2): Ja District, Cameroon (Bates).

The larger frog measures 52 mm.

Leptopelis palmatus (Peters).

Hylambates palmatus Peters, Monatsber. Akad. Wiss. Berlin, p. 453, pl. ii, fig. 2, 1868—Ile de Principé.

Leptopelis rufus Reichenow, Arch. Naturg., 40, part 1, p. 291, pl. ix, figs. 1a and 1b, 1874—Victoria, Cameroon.

Hylambates palmatus Boulenger, Cat. Batr. Sal. Brit. Mus., p. 136, 1882.

2 (3639-40): Efulen, Cameroon (Bates).

These frogs, identified as *rufus* by Boulenger, run down to *violescens* Ahl of Spanish Guinea in the latter's key (Ahl, 1931, Sitzber. Ges. naturf. Freunde Berlin, pp. 186-191). The tibia is included one and three-quarter times in the length from snout to anus. The larger frog measures 55 mm.

Leptopelis aubryi (Duméril).

Hyla aubryi Duméril, Rev. Mag. Zool., (2), 8, p. 561, 1856—Gaboon.

Hylambates aubryi Boulenger, Cat. Batr. Sal. Brit. Mus., p. 135, 1882.

2 (12789-91): Mambawanga Hill, Belgian Congo (Zimmer, 1926).

These frogs compare well with a series from Kribi, Cameroon, in the collection of the Museum of Comparative Zoology. The largest specimen, a female measuring 57 mm., is bloated with enlarged ova.

Leptopelis ocellatus (Mocquard).

Hylambates ocellatus Mocquard, Bull. Mus. Hist. Nat. Paris, p. 413, 1902—fifty kilometers southwest of Lambarene, French Congo.

2 (3637-8): Efulen, Cameroon (Bates).

These specimens were originally identified with *aubryi* of which *ocellatus* is considered a synonym by many authors. I am inclined to think, however, that it may be recognized by its fine markings, particularly by the series of white-edged ocelli (some of which may coalesce) along its flanks. The Museum of Comparative Zoology possesses eight examples from Efulen, Kribi, and the Ja River, Cameroon. The larger frog from Efulen measures 45 mm.

Leptopelis karissimbensis Ahl.

Leptopelis karissimbensis Ahl, Sitzber. Ges. naturf. Freunde Berlin, p. 206, 1929—Kisenji, Lake Kivu, Belgian Ruanda-Urundi.

Leptopelis rugegensis Ahl, Sitzber. Ges. naturf. Freunde Berlin, p. 218, 1929
—Rugege Forest, Belgian Ruanda-Urundi.

1 (12108): Bihunga Escarpment, Uganda (Heller, 1925).

2 (12135-6): Sabinio Volcano, Uganda (Heller, 1925).

These frogs have been compared with a cotype of *rugegensis* (M.C.Z. 17531), a species readily recognizable by the smooth round disks, like breastplates, on the sides of the chest close to the junction of the forearms. I do not recollect having seen these structures in any other member of the genus.

From the description of *rugegensis*, No. 12135 differs in having the tympana scarcely visible though in No. 12108 they are distinct; the tibio-tarsal articulation easily reaches the anterior border of the eye; the tibia is included twice in the length from snout to anus; doubtless this is a sign of youth as it was two and a quarter to two and a third times in the types. When the author states snout as long as the eye or longer, it seems evident that he measured the snout from the nostril. All three frogs are young, the largest measuring only 34 mm.

At my suggestion, Mr. Schmidt later compared them with the description of *karissimbensis* and concluded that the two species are synonymous. The only positive difference is a tarsal spur, such as is barely indicated in Field Museum material, which is said to be present in *karissimbensis*.

Megalixalus fornasinii (Bianconi).

Euchnemis fornasinii Bianconi, Spec. Zool. Mosamb., Rept., pl. v, fig. 1, 1850—Mozambique.

Megalixalus fornasinii Boulenger, Cat. Batr. Sal. Brit. Mus., p. 130, 1882.

1 (12328): Mitiangu, Mahenge, Tanganyika Territory (Zimmer, 1926).

This young frog, measuring 27 mm., is referable to *fornasinii* of which *loveridgii* Procter is a synonym.

Megalixalus dorsalis (Peters).

Hyperolius dorsalis (Schlegel) Peters, Monatsber. Akad. Wiss. Berlin, p. 206, pl. i, fig. 2, 1875—Boutry, Ashanti, Gold Coast and Victoria, Cameroon.

Megalixalus dorsalis Parker, Proc. Zool. Soc. Lond., pp. 900-902, 1931.

5 (12203-7): Kalongi, Belgian Congo (Heller, 1925).

1 (12209): Ibala, Belgian Congo (Heller, 1925).

1 (12940): Kabengere, Belgian Congo (Zimmer, 1926).

Parker (1931) has recently straightened out the confusion into which this frog and the preceding species had fallen since Boulenger, in 1882, placed *dorsalis* in the synonymy of *fornasinii*. I am not certain whether the very young frog from Ibala should be referred to *dorsalis* or some species of *Hyperolius*. The series, apart from this, is composed of three males and three females, the latter distended with ova. Largest male measures 33 mm., female 38 mm.

Megalixalus leptosomus (Peters).

Hyperolius leptosomus Peters, Monatsber. Akad. Wiss. Berlin, p. 619, pl., fig. 5, 1877—Chinchoxo, Portuguese Congo.

Megalixalus leptosomus Boulenger, Cat. Batr. Sal. Brit. Mus., p. 129, 1882.

19 (12914–30, 12981–2): Kabengere, Belgian Congo (Zimmer, 1926).

The series consists of seven males and twelve females. Largest male measures 30 mm., female 32 mm.

Hyperolius spp.

It should perhaps be remarked that the members of this genus are not "species" on the same basis as other amphibians listed in this paper. In many of the forms there is structurally nothing to differentiate them; at the same time they have strikingly different color patterns. Using color pattern as a basis of discrimination, however, is complicated by the fact that in addition to sexual dimorphism in this respect, the young of many species change their pattern on becoming adult while in other species great variation occurs in a single locality. Recently Ahl (1931, Mitt. Zool. Mus. Berlin, 17, pp. 1–132) has given names to more than ninety of these forms. Some undoubtedly are worthy of recognition, but many may be reduced to subspecific rank, while others will find their way into the synonymy of older species.

The forms represented in the Field Museum collection fall into four main groups if separated on a basis of the amount of webbing on the hind toes. It will be noted that the length of the hind limb in relation to body length, as shown by the point reached by the tibio-tarsal articulation of the adpressed limb, is of little diagnostic service in this genus.

Hyperolius steindachnerii Bocage.

Hyperolius steindachnerii Bocage, Jorn. Sci. Lisboa, 1, p. 75, 1866—Duque de Bragança, Angola.

Rappia steindachneri Boulenger, Cat. Batr. Sal. Brit. Mus., p. 125, 1882.

2 (3618–9): Efulen, Cameroon (Bates).

Webbed to the disk on one side of the first, second, third, and fifth toes; one phalanx free on the fourth. The tibio-tarsal articulation reaches to between the eye and nostril in both. The young male differs considerably from the adult female in coloration; his back is uniformly pale gray, sharply distinct from the side by a broad, dark lateral band; in the female the upper edge of the lateral coloring is very irregular, projecting dark pigmented areas—which often become isolated spots—on to the dorso-lateral region. Young male measures 23 mm., female 29 mm.

Hyperolius ocellatus Günther.

Hyperolius ocellatus Günther, Cat. Batr. Sal. Brit. Mus., p. 88, pl. vii, fig. B, 1858—Fernando Po and Angola.

Rappia ocellata Boulenger, Cat. Batr. Sal. Brit. Mus., p. 123, 1882.

2 (3614-5): Biteye, Cameroon (Bates).

Webbed to the disk on one side of the first, second, third, and fifth toes; one phalanx free on the fourth. The tibio-tarsal articulation reaches to the eye or just beyond. These frogs compare well with Cameroon specimens in the Museum of Comparative Zoology except that they lack a canthal streak. Both are females, the larger measuring 26 mm.

Hyperolius concolor (Hallowell).

Ixalus concolor Hallowell, Proc. Acad. Nat. Sci. Phila., 2, p. 60, 1844—Liberia.

Rappia concolor Boulenger, Cat. Batr. Sal. Brit. Mus., p. 124, 1882.

1 (3621): Budu shore, Lake Victoria, Uganda.

Compared with a topotype (M.C.Z. 12021) from Du River, Liberia.

Webbed to the disk on one side of the first, second, third, and fifth toes; one phalanx free on the fourth. The tibio-tarsal articulation reaches the eye. Female, measuring 25 mm:

Hyperolius pleurotaenius (Boulenger).

Rappia pleurotaenia Boulenger, Ann. Mag. Nat. Hist., (7), 17, p. 322, 1906—Zima, Cameroon, and Benito River, French Congo.

1 (3613): Efulen, Cameroon (Bates).

1 (3620): Lambarene, French Congo.

These frogs were originally identified as *pusillus* by Boulenger before he described *pleurotaenius*. *H. pusillus*, however, was described from Umvoti, Natal, and after comparing these frogs with adult *pleurotaenius* from Liberia and the Belgian Congo I am dis-

posed to think that they are young of that species. They have a well marked, though narrow, canthal and lateral stripe.

Webbed to the disk on one side of the first, second, third, and fifth toes; one phalanx free on the fourth. The tibio-tarsal articulation reaches the nostril, or between the eye and the nostril. Both are young, the larger measuring 21 mm.

Hyperolius picturatus Peters.

Hyperolius picturatus Peters, Monatsber. Akad. Wiss. Berlin, p. 206, pl. ii, fig. 2, 1875—Boutry, Ashanti, Gold Coast.

2 (3622-3): Budu shore, Lake Victoria, Uganda.

These frogs are specifically identical with a frog (M.C.Z. 3231) from the same locality and source but received as *Rappia quinquevittata* Bocage. They appear to be identical with larger Kampala, Uganda, frogs which I have referred to *picturatus*.

Webbed to the disk on one side of the first, second, third, and fifth toes; one phalanx free on the fourth. The tibio-tarsal articulation reaches the eye. Both are females, the larger measuring 26 mm.

Hyperolius kivuensis Ahl.

Hyperolius kivuensis Ahl, Mitt. Zool. Mus. Berlin, 17, p. 26, 1931—Lake Kivu, Belgian Ruanda-Urundi.

11 (12097-100, 12104-7, 12109-11): Bihunga Escarpment, Uganda (Heller, 1925).

4 (12137-40): Sabinio Volcano, Uganda (Heller, 1925).

Webbed to the disk on one side of the first, second, third, and fifth toes; one phalanx free on the fourth. The tibio-tarsal articulation reaches the eye or occasionally the nostril. There is considerable color variation in the series, the dark lateral stripe being present or absent; in general, however, they compare so well with the figure (Ahl, 1931, Das Tierreich, Amphibia, 3, p. 280, fig. 151) as to leave no doubts as to their identity. Ten males and five females and young. Largest male measures 30 mm., largest female 31 mm.

Hyperolius multicolor Ahl.

Hyperolius multicolor Ahl, Mitt. Zool. Mus. Berlin, 17, p. 94, 1931—Karisimbi, Belgian Ruanda-Urundi.

5 (12095-6, 12101-3): Bihunga Escarpment, Uganda (Heller, 1925).

256 (12183-6, 12193-4): Lake Bunyoni, Uganda (Heller, 1925). Compared with a cotype (M.C.Z. 17641) from Karisimbi.

Webbed to the disk on one side of the first, second, third, and fifth toes; one phalanx free on the fourth. The tibio-tarsal articulation reaches the eye or nostril. The majority of these are young and present a lateral stripe which is absent in the adults. A male measures 29 mm., female 32 mm.

Hyperolius graueri Ahl.

Hyperolius graueri Ahl, Mitt. Zool. Mus. Berlin, 17, p. 131, 1931—west of Rusisi River and northwest of Lake Tanganyika, Belgian Congo.

9 (12909, 12949–55, 12983): Kabengere, Belgian Congo (Zimmer, 1926).

Webbed to the disk on one side of the first, second, third, and fifth toes; one phalanx free on the fourth. The tibio-tarsal articulation reaches the eye in all except No. 12953 where it reaches the nostril. All are females, the largest measuring 34 mm.

Hyperolius argentovittis Ahl.

Hyperolius argentovittis Ahl, Mitt. Zool. Mus. Berlin, 17, p. 72, 1931—Ujiji, Lake Tanganyika, Tanganyika Territory.

Hyperolius callichromus Ahl, Mitt. Zool. Mus. Berlin, 17, p. 99, 1931—west of Rusisi River and northwest of Lake Tanganyika, Belgian Congo (restricted).

10 (12912, 12941–8, 12973): Kabengere, Belgian Congo (Zimmer, 1926).

Compared with cotypes (M.C.Z. 17630–1) from west of the Rusisi River.

Webbed to the disk on one side of the first, second, third, and fifth toes; one phalanx free on the fourth. The tibio-tarsal articulation reaches the eye or just beyond in males, eye or nostril in the females. Two males and eight females. Larger male measures 33 mm., largest female 34 mm.

Hyperolius decoratus Ahl.

Hyperolius decoratus Ahl, Mitt. Zool. Mus. Berlin, 17, p. 78, 1931—Longa, Cameroon (also Loanda, Angola).

1 (3616): Benguela, Angola (Ansorge).

Compared with a cotype (M.C.Z. 17632) from Loanda, Angola.

Webbed to the disk on one side of the first, second, third, and fifth toes; one phalanx free on the fourth. The tibio-tarsal articulation reaches the nostril. There is a very strong breast-fold. Female measures 32 mm.

Hyperolius punctulatus (Bocage).

Rappia punctulata Bocage, Herpét. Angola, Lisbon, p. 168, 1895—banks of the Quanza River, Angola.

1 (3617): Dondo, Angola (Ansorge).

This frog was received by Field Museum identified as *marmoratus*. This species it certainly is not and, in the absence of comparative material, I refer it to *punctulatus* with great reservation, having only the original description to guide me.

Whether the locality from whence it comes is identical with Ndondo on the Quanza River I cannot say for certain, though it seems likely. As it was purchased from Rosenberg it would seem probable that its source was the same as a frog listed under *marmoratus* in the British Museum Catalogue (1882) as coming from the Donda River. This may be a tributary of the Quanza.

Webbed to the disk on one side of the first, second, third, and fifth toes; one phalanx free on the fourth. The tibio-tarsal articulation reaches between the eye and the nostril. Color is ashy-gray above; a faint brown line edged above with lighter can be traced from the eye to behind the shoulder; a pair of brown spots, edged with lighter either in front or behind, are present on either side of the dorso-lateral region of the lower back. Male, measuring 26 mm.

Hyperolius striolatus Peters.

Hyperolius striolatus Peters, Sitzber. Ges. naturf. Freunde Berlin, p. 9, 1882—Taita, Kenya Colony.

Rappia ferniquei Mocquard, Bull. Mus. Hist. Nat. Paris, 8, p. 407, 1902—Athi River, Kenya Colony.

Rappia marmorata Meek (not Rapp), Field Mus. Nat. Hist., Zool. Ser., 7, p. 404, 1910—Athi Plains and Lukenya, Kenya Colony.

Rappia cinctiventris Meek (not Cope), Field Mus. Nat. Hist., Zool. Ser., 7, p. 404, 1910—Athi Plains; Lukenya; Kijabe, Kenya Colony.

8 (2308, 2400-3, 2405-6): Athi Plains, Kenya Colony (Akeley, 1906).

6 (2409, 2420, 2423): Lukenya, Kenya Colony (Akeley, 1906).

1 (2431): Kijabe, Kenya Colony (Akeley, 1906).

Webbed to the disk on one side of the first, second, third, fourth, and fifth; webbing narrow on the outer side of the last phalanx of the fourth, practically absent (i.e. an extremely narrow fringe of web) on the inner side. The tibio-tarsal articulation reaches the eye. All the series were not examined as many of them were in too poor a state of preservation. Length of an adult female, 27 mm.

Hyperolius undulatus (Boulenger).

Rappia undulata Boulenger, Ann. Mus. Congo, (1), 2, fasc. 1, p. 4, pl. ii, fig. 2, 1901—Pweto and Lofoi, Belgian Congo.

Rappia symetrica Mocquard, Bull. Mus. Hist. Nat. Paris, 8, p. 408, 1902—Athi River, Kenya Colony.

1 (2412): Nairobi, Kenya Colony (Akeley, 1906).

2 (12315-6): Kitete, Tanganyika Territory (Zimmer, 1926).

6 (12317-21, 12324): Matameras, Tanganyika Territory (Zimmer, 1926).

Both Kitete and Matameras are in the Mahenge District.

Compared with a cotype of *undulatus* (M.C.Z. 15427) from Lofoi.

The Nairobi frog was identified as *marmoratus* by Meek, but omitted from his paper on the Akeley collection. It is now in a very macerated condition.

Webbed to the disk on one side of the first, second, third, and fifth or sometimes half a phalanx free on the first; one phalanx free on the fourth. The tibio-tarsal articulation reaches the eye (Nos. 12317, 12324) or end of the snout (12319, 12321) or between. None has a definite gular disk but those that are apparently males (No. 12316) have the throat granular. The largest frog measures 17 mm.

Hyperolius simus Ahl.

Hyperolius simus Ahl, Mitt. Zool. Mus. Berlin, 17, p. 46, 1931—Usumbura, Lake Tanganyika, Belgian Ruanda-Urundi.

3 (12852, 12860, 12872): Katobwe, Belgian Congo (Zimmer, 1926).

10 (12910, 12956-63, 12980): Kabengere, Belgian Congo (Zimmer, 1926).

This form is very near to *rhodoscelis* with Nyamkolo specimens of which it has been compared; the series differ, however, in possessing a more acuminate snout and sharper canthus.

Webbed to one side of the disk on the second, third, and fifth toes only; one phalanx free on the first and fourth toes. The tibio-tarsal articulation reaches to between the eye and snout in the male and some females, barely to the eye in three of the females. The male measures 28 mm., the largest female 36 mm.

Hyperolius cinnamome-ventris Bocage.

Hyperolius cinnamome-ventris Bocage, Journ. Sci. Lisboa, 1, p. 75, 1866—Duque de Bragança, Angola.

Rappia cinnamomeiventris Bocage, Herpet. Angola, Lisbon, p. 172, pl. xix, fig. 2, 1895.

6 (12934-9): Kabengere, Belgian Congo (Zimmer, 1926).

Webbed to the disk on one side of the third and fifth toes; one phalanx free on the first, second, and fourth. The tibio-tarsal articulation reaches the posterior border of the eye. The fact that some of these frogs are gravid females precludes the possibility of their being specifically identical with the larger *picturatus* which they somewhat resemble. On the other hand their striking markings still more closely resemble a frog (M.C.Z. 17252) from Kampala, Uganda, which I refer to *picturatus*. Largest female measures 25 mm.

Hyperolius nasutus Günther.

Hyperolius nasutus Günther, Proc. Zool. Soc. Lond., p. 482, pl. xxxiii, fig. 3, 1864—Duque de Bragança, Angola.

Rappia nasuta Boulenger, Cat. Batr. Sal. Brit. Mus., p. 127, 1882.

Rappia granulata Boulenger, Ann. Mus. Congo, (1), 2, fasc. 1, p. 4, pl. ii, fig. 3, 1901—Pweto, Lake Mweru, Belgian Congo.

1 (12326): Matameras, Tanganyika Territory (Zimmer, 1926).

1 (12869): Katobwe, Belgian Congo (Zimmer, 1926).

3 (12931-3): Kabengere, Belgian Congo (Zimmer, 1926).

Compared with a specimen (M.C.Z. 3230) from Ngola, Angola. Ngola is just north of the type locality.

The terminal phalanx of every toe is free of webbing. The tibio-tarsal articulation reaches the nostril in the males, the eye or a little beyond, in the three females. The largest male measures 27 mm., the largest female 23 mm.

I have examined some of the frogs from Vankerckhovenville, Belgian Congo, which were referred by Noble (1924, Bull. Amer. Mus. Nat. Hist., 49, p. 259) to *nasutus* and find that in reality they represent *oxyrhynchus* Boulenger, a species which was described from Pweto and Lofoi, Belgian Congo.

Mocquardia obscura (Boulenger).

Cassina obscura Boulenger, Proc. Zool. Soc. Lond., p. 644, pl. xxxix, fig. 3, 1894—Let Merafia, Shoa, Ethiopia.

Rothschildia kounihensis Mocquard, Bull. Mus. Hist. Nat. Paris, 11, p. 288, 1905—Ouardji, valley of Kounhi, Ethiopia.

Rothschildia obscura Parker, Proc. Zool. Soc. Lond., p. 30, 1930.

Mocquardia obscura Ahl, Das Tierreich, Amphibia Anura, 3, p. 460, fig. 320, 1931.

1 (12514): Allata, Ethiopia (Osgood, 1926).

Though *obscura* has an osseous and Y-shaped omosternum and this Allata frog has a cartilaginous, Y-shaped omosternum I prefer to use the older name, believing that *kounihensis* is a synonym. The

above example of this rare frog also differs from the original description of *obscura* and agrees with *kounihensis* in that the snout is slightly longer than the eye and the interorbital space is much broader than an upper eyelid. However, Parker (1930), after a re-examination of the type of *obscura* finds that it does not differ from *kounihensis* in these characters.

It might be added that the Allata frog possesses a distinct (not indistinct) metatarsal tubercle and that the tarso-metatarsal articulation of the adpressed hind limb reaches to the shoulder (not orbit) and the tibio-tarsal articulation only as far as the elbow. The hind limb is longer than the distance from snout to anus, not equal to it as is the case with *abyssinica* Parker. This female measures 37 mm., its hind limb from the anus 42 mm.

Rothschildia Mocquard (1905) being preoccupied by *Rothschildia* Grote (1896), a New World genus of Heterocera, *Mocquardia* was proposed in substitution by Ahl (1931).

***Kassina senegalensis* (Duméril and Bibron).**

Cystignathus senegalensis Duméril and Bibron, *Erpét. Gén.*, 8, p. 418, 1841—Galam, Senegal.

Cassina senegalensis Boulenger, *Cat. Batr. Sal. Brit. Mus.*, p. 131, 1882; Meek, *Field Mus. Nat. Hist., Zool. Ser.*, 7, p. 404, 1910.

2 (2395, 2413): Nairobi, Kenya Colony (Akeley, 1906).

1 (2404): Athi Plains, Kenya Colony (Akeley, 1906).

1 (12792): Mambawanga Hill, Belgian Congo (Zimmer, 1926).

The largest frog (Congo) measures 37 mm.

BREVICIPITIDAE

***Breviceps adpersus* Peters.**

Breviceps adpersus Peters, *Reise nach Mossamb.*, 3, p. 177, 1882—Damaraland and Transvaal; Hewitt, *Ann. Natal Mus.*, 7, p. 109, pl. vi, fig. 1, 1932.

2 (16006-7): Kleinsee, Cape Province (Wecke, 1931).

Compared with one of Peters' Damaraland cotypes (M.C.Z. 11619). Since these types were in existence, it was unfortunate that Mr. J. H. Power omitted *adpersus* from his monograph of South African members of the genus. Mr. Hewitt is undoubtedly correct in referring his specimens from Quickborn near Okahandja to *adpersus*, for his color description agrees with that of the cotype and also No. 16006, which I assume to be a male. No. 16007 has all pattern obscured and lacks the beard-like markings figured by Hewitt.

In recent years two species of the genus have been described from Port Nolloth (which is near to Kleinzee) but both of them—*macrops* and *namaquensis*—are quite distinct from *adspersus*. In the Kleinzee frogs the snout is included from nine to ten times in the length from snout to anus. The male measures 36 mm., the female 52 mm.

Phrynomerus bifasciatus (Smith).

Brachymerus bifasciatus Smith, Illus. Zool. S. Africa, 3, pl. lxiii, 1849—"Country to the east and northeast of Cape Colony."

Phrynomantis bifasciata Boulenger, Cat. Batr. Sal. Brit. Mus., p. 172, 1882; Meek, Field Mus. Nat. Hist., Zool. Ser., 7, p. 404, 1910.

1 (2410): Lukenya, Kenya Colony (Akeley, 1906).

A young 31 mm. frog, as described by Meek.

Phrynomerus annectens (Werner).

Phrynomantis annectens Werner, in Schultze, Denkschr. Med. Naturw. Ges. Jena, 16, p. 294, 1910—Aar River, Cape Colony.

Phrynomantis nasuta Methuen and Hewitt, Ann. Transvaal Mus., p. 54, pl. xiv, fig. 2, 1911—Kraikluft, Great Karas Mountains, Great Namaqualand, Cape Colony.

Hoplophryne marmorata Ahl, Zool. Anz. Leipzig, 107, p. 334, fig. 1, 1934—Okahandja, southwest Africa.

2 (3643-4): Benguela, Angola (Ansorge).

These frogs agree well with Werner's description and the excellent figure of *nasuta* which must be regarded as a synonym. *P. annectens* was for long confused with *bifasciatus* Smith. Length of male 30 mm., and female 33 mm. The attributing of one of these almost deserticolous frogs to such a highly specialized rain-forest genus as *Hoplophryne* shows an extraordinary lack of appreciation of the probabilities of distribution.

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